

AD-A252 518



1992

THESIS/DISSERTATION

①

The Governors of Maryland and Education The Politics
of Peacekeeper Rail Garrison

Alan Richard Van Tassel, Captain

AFIT Student Attending: University of Maryland

AFIT/CI/CIA- 92-007D

AFIT/CI
Wright-Patterson AFB OH 45433-6583

Approved for Public Release IAW 190-1
Distributed Unlimited
ERNEST A. HAYGOOD, Captain, USAF
Executive Officer

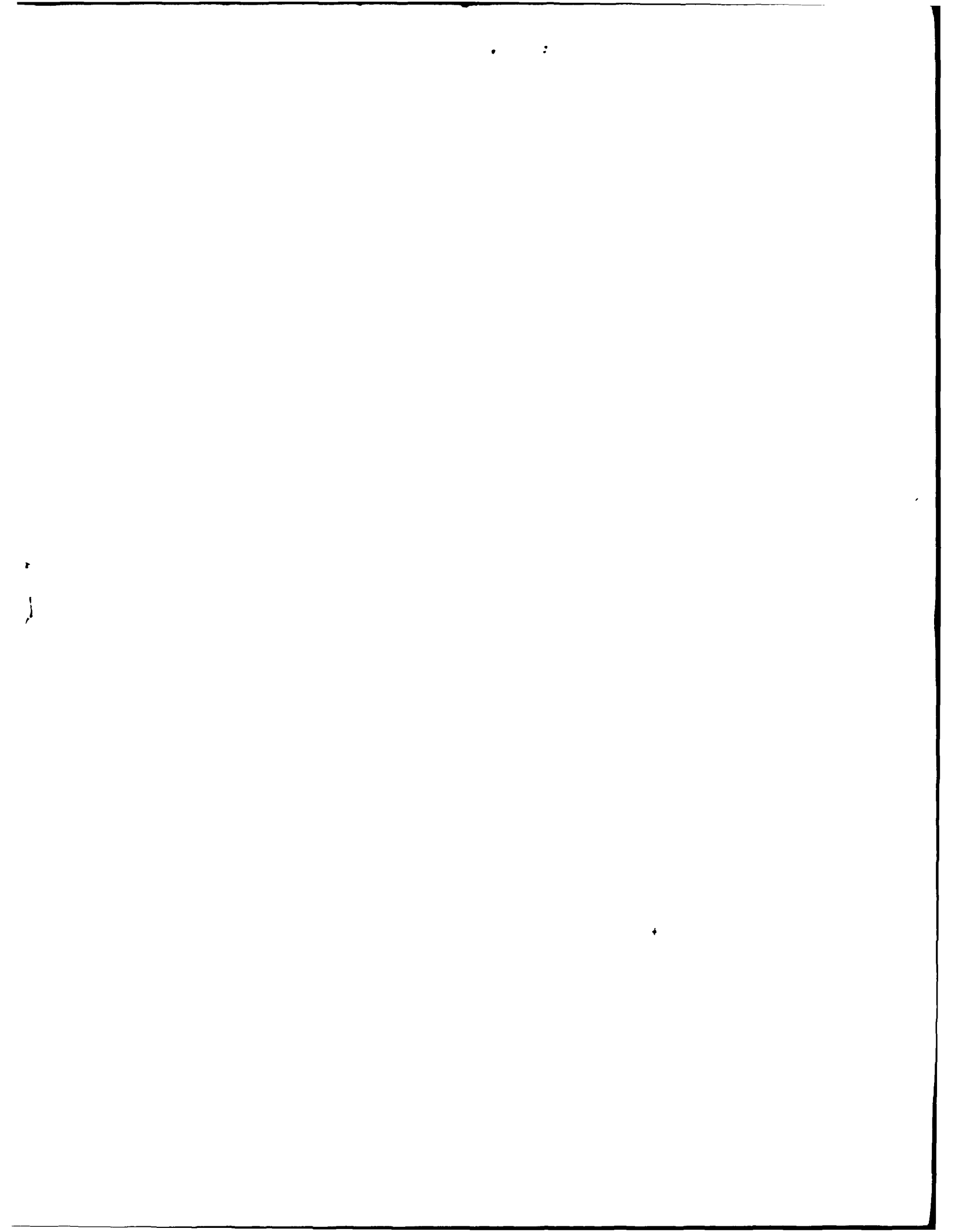
DTIC
ELECTE
JUL 9 1992
S D

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

92-18007



92 7 0 0 0 10



ABSTRACT

Title of Dissertation: THE GOVERNORS OF MARYLAND AND EDUCATION
The Politics of Peacekeeper Rail
Garrison

Alan Richard Van Tassel, Doctor of Philosophy, 1992

Dissertation directed by: George H. Quester, Professor,
Department of Government and
Politics

In 1985, the Congress capped at 50 the number of Peacekeeper ICBMs that could be deployed in vulnerable Minuteman silos, thereby sending the Reagan administration and the Air Force in search of another basing mode so that 100 of the ten-warhead missiles could be deployed as recommended by the Scowcroft Commission. The result was Peacekeeper rail garrison--a strategic nuclear weapon system that combined the Peacekeeper missile with railroad trains garrisoned at military installations. The missile trains would have dispersed across the nation's railways only during times of "national need" like the Cuban Missile Crisis. This case study examines the politics of that weapon system in order to contribute to the literature regarding weapons acquisition, test a number of propositions suggested by the bureaucratic politics model, and assess the influence of nonbureaucratic forces and actors on

Peacekeeper rail garrison's fortunes.

Following a brief discussion of Peacekeeper basing through the missile's eventual deployment in Minuteman silos, the study focuses on the search for a follow-on basing mode, the genesis of rail-garrison basing, bureaucratic reactions to the concept, the arguments made for and against Peacekeeper rail garrison, and efforts to promote the weapon system within a legislature seriously divided on the issue of ICBM modernization. While the bureaucratic politics model goes a long way toward explaining the politics of Peacekeeper rail garrison, the study revealed that decisionmaking within the executive branch took place at higher levels and was less incremental than predicted and that nonbureaucratic factors were significant. Especially important were the Congress' lack of consensus regarding ICBM modernization, the end of the Cold War, the proposed ban on mobile ICBMs with more than one warhead, and declining defense budgets. The rail-garrison program, approved for development by President Reagan in December 1986, was canceled by President Bush in September 1991.

Accession For	
NTIS GPA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

THE POLITICS OF PEACEKEEPER RAIL GARRISON

by

Alan Richard Van Tassel

Dissertation submitted to the Faculty of the Graduate School
of The University of Maryland in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
1992

Advisory Committee:

Professor George H. Quester, Chairman/Advisor
Professor Roger H. Davidson
Professor I. M. Destler
Professor Steven Fetter
Professor Michael Nacht

© Copyright by
Alan Richard Van Tassel
1992

DEDICATION

To Connie, Hillary, Justin, Emily, and Molly

ACKNOWLEDGMENTS

Much of this study would not have been possible without the cooperation of those interviewed as part of my research. In addition to the individuals cited in the pages that follow, I thank the following Air Force personnel for their assistance: Gen. James McCarthy, Lt. Gen. Gordon Fornell, Maj. Gen. John Toomay (Ret.), Col. John Gordon, Col. Carl Rule, Col. Frank Veracalli, Col. Glen Vogel, Lt. Col. Al Duff, Lt. Col. Joseph Sutter, Lt. Col. Jerry Van Kueren, Lt. Col. Rick Wallace, Maj. George Havrilak, and Dr. Sydell Gold. I also thank Col. Frank Dellerman (USAF, Ret.), Greg Hulcher, Robert Marcincyzk, Franklin Miller, and Maurice Mizrahi from the Office of the Secretary of Defense; congressional staff members Bob Bell, Bob DeGrass, Terry Freeze, Jim Miller, and Bob Sherman; Bob Einhorn from the Department of State; Steve Hildreth from the Congressional Research Service; Steve Kuhta from the General Accounting Office; Gary Rawitscher and Brian Smith from the Office of Management and Budget; Col. Michael Terrill (USAF, Ret.) from the Harris Group; and Pat Towell from Congressional Quarterly.

A special thank you to Brig. Gen. John Douglass

(USAF), Col. Robert McMains (USAF, Ret.), and Lt. Col. Tom Maxwell (USAF, Ret.) for reviewing draft chapters and to Col. Ken Van Dillon (USAF, Ret.) from the Harris Group, Lt. Col. Jim Burke (USAF), Peter Hueesy from the Institute for Foreign Policy Analysis, Jonathan Medalia from the Congressional Research Service, and Brenda Stewart from ANSER.

The study's content, of course, is solely my responsibility.

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
List of Tables	vii
List of Figures	viii
List of Acronyms	ix
Chapter 1 Understanding the Politics of Peacekeeper Rail Garrison	1
The Peacekeeper Rail Garrison Weapon System	11
The Politics of Peacekeeper Rail Garrison	16
The Bureaucratic Politics Model	20
Testing the Bureaucratic Politics Model	27
Propositions for the Inner Layer	29
Propositions for the Outer Layer	30
The Model's Limitations	32
Methodology	37
How This Study is Organized	43
Chapter 2 Peacekeeper Basing Through Silo Deployment	45
The Air-Mobile System	47
The Trench Concept	51
Silo Deployment I	56
Multiple Protective Shelters	57
Silo Deployment II	67
Closely-Spaced Basing	69
Silo Deployment III	71
Rail-Mobile Minuteman	73
Rail Mobility in the Interim Years	81
Chapter 3 The Genesis of Peacekeeper Rail Garrison	94
The Breakdown of the Scowcroft Commission Compromise	98
Capping the Peacekeeper in Minuteman Silos	105
The Search for a Follow-on Basing Mode	108
The Genesis of Rail-Garrison Basing	118

Bureaucratic Reactions to Rail-Garrison Basing	129
Selecting a Basing Mode for the Peacekeeper	151
Chapter 4 Peacekeeper Rail Garrison During the Reagan Administration	158
Debating Peacekeeper Rail Garrison	159
Survivability	160
Effect on Crisis Stability	164
Cost	172
Public Interface	176
Security	180
Peacekeeper Rail Garrison Meets the Congress	184
Round One: The Fiscal Year 1988 Budget Battle	194
Round Two: The Fiscal Year 1989 Budget Battle	204
Chapter 5 Peacekeeper Rail Garrison During the Bush Administration	225
Growing Support for a Two-Missile Compromise	226
The Two-Missile Compromise Begins to Unravel	252
Restoring the Two-Missile Compromise	259
The Revolution of 1989 and Its Aftermath	263
Peacekeeper Rail Garrison's Demise	288
Chapter 6 Peacekeeper Rail Garrison and the Bureaucratic Politics Model	306
Testing the Bureaucratic Politics Model	311
Assessing the Impact of Nonbureaucratic Forces and Actors	326
Amendments and Implications	331
Sources Cited	340

LIST OF TABLES

<u>Number</u>	<u>Page</u>
1. Life-Cycle Cost Estimates for 50 Peacekeeper Missiles	116
2. DOD Budget Authority by Appropriations	192
3. Rail-Garrison Funding--Fiscal Years 1987-1992	304

LIST OF FIGURES

<u>Number</u>	<u>Page</u>
1. The Peacekeeper Missile	3
2. Proposed Garrison Sites	12
3. The Peacekeeper Train	13
4. Typical Rail Garrison	14
5. The Trench Concept	52
6. Vertical MPS Basing	59
7. Horizontal MPS Basing	61
8. Missile-Transfer Procedure	63
9. MPS Launch Sequence	64
10. MPS Missile Simulator	66

LIST OF ACRONYMS

AFB	Air Force Base
BES	Budget Estimate Submission
BMO	Ballistic Missile Office
C ³	Command, Control, and Communications
CEP	Circular Error Probable
CFE	Conventional Forces in Europe
CIA	Central Intelligence Agency
CINCSAC	Commander in Chief, Strategic Air Command
DAB	Defense Acquisition Board
DOD	Department of Defense
DPG	Defense Planning Guidance
DSARC	Defense Systems Acquisition Review Council
FOC	Full Operational Capable
FOT&E	Follow-on Test and Evaluation
FRA	Federal Railroad Administration
FY	Fiscal Year
HADS	House Appropriations Defense Subcommittee
HASC	House Armed Services Committee
ICBM	Intercontinental Ballistic Missile

IJRG	ICBM JRMB Review Group
INF	Intermediate Nuclear Forces
IOC	Initial Operational Capable
JCS	Joint Chiefs of Staff
JRMB	Joint Requirements Management Board
LUA	Launch Under Attack
MIRV	Multiple Independently-Targetable Reentry Vehicle
MPS	Multiple Protective Shelters
MX	Missile Experimental
NATO	North Atlantic Treaty Organization
NSC	National Security Council
NSDD	National Security Decision Directive
NSDM	National Security Decision Memorandum
NSM	National Security Memorandum
OSD	Office of the Secretary of Defense
OTA	Office of Technology Assessment
PD	Presidential Decision
PBD	Program Budget Decisions
PEM	Program Element Monitor
PLU	Preservation of Location Uncertainty
POM	Program Objectives Memorandum
PPBS	Planning, Programming, and Budgeting System
psi	pounds per square inch
RV	Reentry Vehicle

SALT	Strategic Arms Limitation Talks
SAC	Strategic Air Command
SADS	Senate Appropriations Defense Subcommittee
SASC	Senate Armed Services Committee
SDI	Strategic Defense Initiative
SICBM	Small Intercontinental Ballistic Missile
SIOP	Single Integrated Operational Plan
SLBM	Submarine-Launched Ballistic Missile
SOF	Special Operations Forces
START	Strategic Arms Reduction Talks
TEL	Transporter-Erector-Launcher
USDA	Under Secretary of Defense for Acquisition
USDP	Under Secretary of Defense for Policy
USDRE	Under Secretary of Defense for Research and Engineering

CHAPTER 1
UNDERSTANDING THE POLITICS OF
PEACEKEEPER RAIL GARRISON

In 1965, the blueprints for the last of the Minuteman missile series, the Minuteman III, were finished and being rolled up from the drawing boards. Fresh sheets of paper were then rolled out on those same boards, and the designers began to lay out the lines of the next missile--the follower to the Minuteman III. The missile that took shape there would be instantly recognized today, more than twenty years later: the MX, the Peacekeeper, in all its essential features--a large, solid propellant, highly MIRVed, silo-based ICBM.

Carl H. Builder, The Masks of War

On 22 December 1986, more than two decades after plans for a follow-on missile to the Minuteman III began, the Peacekeeper intercontinental ballistic missile (ICBM), still known to many as the MX or Missile Experimental, reached initial operational capability when a tenth missile went on alert in a modified Minuteman silo assigned to the 90th Strategic Missile Wing, headquartered at F.E. Warren Air Force Base (AFB), Wyoming.¹ That missile, like the nine deployed before it

¹Strategic Air Command, Office of the Historian, SAC Missile Chronology: 1939-1988 (Offutt AFB, NE: Strategic Air Command, 1 May 1990), 85. Although the MX was not

and the 40 that would follow, was much larger and more powerful than the Minuteman III it replaced. Measuring 71 feet in length, 92 inches in diameter, and weighing 195,000 pounds (see fig. 1),² the Peacekeeper missile can deliver ten Mark 21 reentry vehicles (RVs), each containing a 300-kiloton warhead, almost 7,000 miles to ten separate targets with a median accuracy or circular error probable (CEP) of approximately 300 feet.³ In contrast, the Minuteman III is 60-feet long, 66 inches in diameter at its widest point, and weighs 78,000 pounds.⁴ Moreover, it carries just three RVs and has a CEP more than twice that of the Peacekeeper.⁵

redesignated until November 1982, with the exception of quotations, the missile will be called the Peacekeeper throughout this study.

²U.S. Air Force, Final Environmental Impact Statement: Peacekeeper Rail Garrison Program, vol. 1 (Washington, D.C.: U.S. Air Force, February 1989), 1-4.

³The International Institute for Strategic Studies, The Military Balance, 1987-1988 (London: International Institute for Strategic Studies, 1987), 202. CEP is "the radius of a circle centered on a target, within which half of all weapons of a given type are expected to fall (i.e. the median accuracy)" (Edward Luttwak and Stuart Koehl, The Dictionary of Modern War [New York: HarperCollins, 1991], 112).

⁴Herbert Scoville, MX: Prescription for Disaster (Cambridge: MIT Press, 1981), 13.

⁵IISS, The Military Balance, 1987-1988, 202.

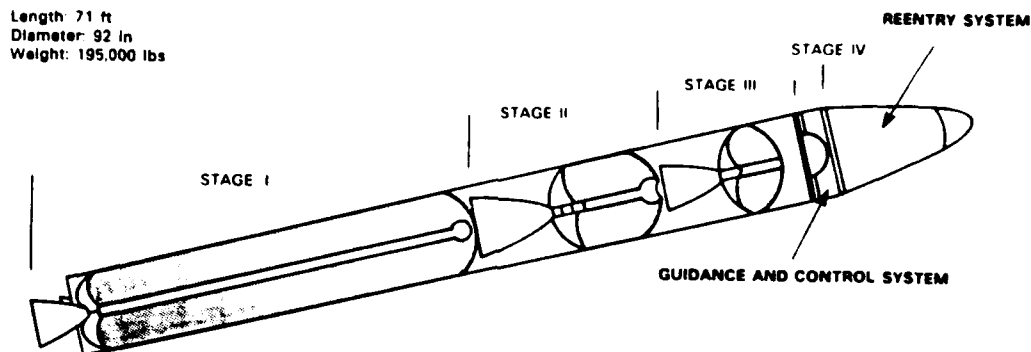


Fig. 1. The Peacekeeper Missile (USAF, FEIS, S-3)

Initially known as WS120A--a 70-foot long, 120-inches diameter, silo-based ICBM that would have carried eight highly-accurate, high-yield multiple independently-targetable reentry vehicles (MIRVs)⁶--the missile was canceled by Defense Secretary Robert McNamara in October 1967. Instead, part of the Minuteman force was MIRVed.⁷ The Strategic Air Command (SAC), however, renewed its request for an advanced ICBM in November 1971, and in

⁶Department of Defense, Office of the Deputy Under Secretary of Defense for Research and Engineering (Strategic and Space Systems), ICBM Basing Options: A Summary of Major Studies to Define a Survivable Basing Concept for ICBMs (Washington, D.C.: Department of Defense, December 1980), 45. Unlike the Minuteman, WS120A was to be based in hard-rock silos--silos constructed in surface rock outcroppings and lined with concrete, thereby creating a hardness of about 3,000 pounds per square inch of blast overpressure (Ibid.). The "WS" in WS120A stood for weapon system, while the "120" was the missile's diameter in inches.

⁷Lauren H. Holland and Robert A. Hoover, The MX Decision: A New Direction in U.S. Weapons Procurement Policy? (Boulder, CO: Westview Press, 1985), 125.

December of the following year the Air Force directed that the new missile program, designated MX, also emphasize mobile basing.⁸ Thus, by the end of 1972 the Peacekeeper program's central objectives were to increase the United States' capacity to destroy hardened targets like Soviet missile silos while rendering the U.S. ICBM force more survivable. Both objectives, however, became serious points of contention during the 15 years that elapsed between SAC's request and the deployment of the first silo-based Peacekeepers.

Peacekeeper's accuracy became an issue when it rekindled a long-running debate regarding what constitutes a credible nuclear deterrent. On one side of the issue are the assured destruction theorists who argue that nuclear weapons are radically different from conventional weapons because of their enormous destructive power. Whereas conventional weapons can both deter and defend, nuclear weapons can only deter or, if deterrence fails, destroy the aggressor. They also assert that any nuclear exchange likely would escalate to general nuclear war, thereby rendering damage limitation and any distinction between counterforce and countervalue

⁸SAC, Missile Chronology, 58-59.

targeting essentially meaningless.⁹ Finally, they hold that failing to recognize these "truths" fuels the arms race, leads to the development and deployment of first-strike weapons, and makes nuclear war more thinkable.¹⁰ This point of view is perhaps best represented by Bernard Brodie's observation that:

Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have almost no other useful purpose.¹¹

On the other side of the issue are the flexible response theorists. They argue that an assured destruction strategy is self-detering and that credible deterrence requires efforts to control escalation and limit damage should deterrence fail. This, in turn,

⁹Counterforce targeting can be defined as "a nuclear targeting policy whereby attacks would be directed against the enemy's military forces in general, and nuclear forces in particular, rather than against enemy population centers" (Luttwak and Koehl, The Dictionary of Modern War, 145). Countervalue targeting, on the other hand, is "a nuclear targeting policy . . . directed against the enemy's cities and industrial area" (Ibid., 146).

¹⁰This and the opposing viewpoint are summarized in Christopher J. Lamb, How to Think About Arms Control, Disarmament, and Defense (Englewood Cliffs, NJ: Prentice-Hall, 1988), 87-88. First-strike weapons are those that have a "capability sufficiently effective to destroy enemy (nuclear) forces in one blow; in other words, a disarming counterforce capability" (Luttwak and Koehl, The Dictionary of Modern War, 214).

¹¹Bernard Brodie, The Absolute Weapon (New York: Harcourt Brace, 1946), 76.

calls for an increased counterforce capability among other offensive and defensive measures.¹² As Colin Gray and Keith Payne wrote:

An adequate U.S. deterrent is one that denies the Soviet Union any plausible hope of success at any level of strategic conflict; offers a likely prospect of Soviet defeat; and offers a reasonable chance of limiting damage to the United States.¹³

Of course, many policymakers fall somewhere between these extremes and "see merit in both without being convinced that either doctrine is totally right,"¹⁴ thereby further complicating the issue. Moreover, the debate is one that cannot be resolved since it is virtually impossible to know why one state chooses not to attack another. As Bruce Russett put it:

Whether military deterrence has succeeded or been irrelevant, or whether it could have succeeded with a much lower level of military deterrent threat, we cannot know. Without access to the full archives, and minds, of the [adversary], we can only have opinions. It becomes an article of faith, not subject to empirical confirmation.¹⁵

¹²Lamb, Arms Control, Disarmament, and Defense, 87-88.

¹³Colin S. Gray and Keith B. Payne, "Victory is Possible," Foreign Policy, no. 39 (Summer 1980): 118.

¹⁴James M. Lindsay, Congress and Nuclear Weapons (Baltimore: Johns Hopkins University Press, 1991), 17.

¹⁵Bruce Russett, "Deterrence in Theory and Practice," The Jerusalem Journal of International Relations 8, nos. 2-3 (June 1986): 217.

Although U.S. contingency plans for nuclear war have long included counterforce targets,¹⁶ the debate between assured destruction and flexible response theorists was muted until the 1970s by the relative inaccuracy of nuclear weapons. A Minuteman III ICBM armed with the Mark 12A reentry vehicle, for example, has just a 65 percent probability of destroying with one warhead a target hardened to 2,000 pounds per square inch (psi) of blast overpressure--the approximate hardness of a Minuteman silo.¹⁷ The Peacekeeper's accuracy and yield, however, breathed new life into the debate, since a single Mark 21 RV has a 99.5 percent chance of destroying the same target.¹⁸ While Peacekeeper's counterforce capability appealed to those advocating greater

¹⁶As David Rosenberg noted, when the Joint Chiefs of Staff "formally organized targeting categories and priorities for nuclear war" in August 1950, the first priority was "the 'destruction of known targets affecting the Soviet capability to deliver atomic bombs'" (David Alan Rosenberg, "U.S. Nuclear War Planning, 1945-1960," in Strategic Nuclear Targeting, ed. Desmond Ball and Jeffrey Richelson [Ithica: Cornell University Press, 1986], 40). Likewise, Soviet nuclear forces were one of five options when the United States' first Single Integrated Operational Plan or SIOP went into effect on 1 July 1961 (Desmond Ball, "The Development of the SIOP, 1960-1983," in Strategic Nuclear Targeting, 57 and 63).

¹⁷Jonathan E. Medalia, MX, "Midgetman," and Minuteman Missile Programs (Washington, D.C.: Congressional Research Service, 1 March 1991), 2.

¹⁸Ibid.

flexibility for the United States' nuclear forces and targeting strategy, it was opposed by assured destruction theorists.

This schism was further exacerbated by a series of presidential decisions aligning the SIOP ever more closely with the goals of flexible response theorists like Gray and Payne. Beginning in 1974 with National Security Decision Memorandum (NSDM) 242, otherwise known as the Schlesinger Doctrine, this trend continued with Presidential Decision (PD) 59 during the Carter administration, National Security Decision Directive (NSDD) 13 during the Reagan years, and National Security Memorandum (NSM) 12 during the Bush presidency.¹⁹ It also was affected by the nuclear freeze movement of the early 1980s, a movement that grew out of the United States' refusal to ratify the Strategic Arms Limitation Talks (SALT) II Treaty, the Reagan administration's initial reluctance to negotiate a follow-on agreement with the Soviet Union, and sanguine statements by President Reagan and others regarding nuclear war. As Barry Blechman put it, there was a growing concern throughout the populace that "the possibility of nuclear

¹⁹For a discussion of these and other changes to the SIOP, see Desmond Ball and Robert C. Toth, "Revising the SIOP: Taking War-Fighting to Dangerous Extremes," International Security 14, no. 4 (Spring 1990): 65-92.

war was not only real, but rising."²⁰

While Peacekeeper's first-strike potential could be controlled by limiting the number of missiles deployed, finding a survivable basing mode for the ICBM was a more onerous task. Although more than 30 basing modes were considered, some more seriously than others, each proved to be either technically infeasible, unaffordable, politically unacceptable, or some combination of the three. Ultimately, a political compromise engineered by the President's Commission on Strategic Forces, more popularly known as the Scowcroft Commission, was required to save the Peacekeeper. In exchange for the deployment of 100 Peacekeepers in modified Minuteman silos--the same silos previously declared vulnerable to a Soviet first strike--the Reagan administration agreed to develop a small, mobile, single-warhead ICBM and redouble its efforts to reach a strategic arms control agreement with the Soviet Union.²¹

Many members of the legislature, however, remained

²⁰Barry M. Blechman, The Politics of National Security: Congress and U.S. Defense Policy (New York: Oxford University Press, 1990), 84.

²¹See The President's Commission on Strategic Forces, Report of the President's Commission on Strategic Forces (Washington, D.C.: GPO, April 1983). Less than two weeks after the Scowcroft Commission issued its report, President Reagan approved its proposals (SAC, Missile Chronology, 73).

uncomfortable with the notion of placing 1,000 warheads in just 100 Minuteman silos, and in 1985 the Congress limited to 50 the number of Peacekeeper missiles that could be deployed in that manner.²² On 19 December 1986, the Reagan administration responded by announcing that additional Peacekeepers would be deployed in the rail-garrison mode,²³ and for the next two years Peacekeeper rail garrison was one of the administration's top strategic priorities. In 1990, however, the Air Force sought to cancel the program,²⁴ and President Bush indefinitely deferred its deployment.²⁵ On 27 September 1991, the rail-garrison program was canceled as part of a major U.S. arms control initiative.²⁶

²²Department of Defense Authorization Act, 1986, Statutes at Large, 99, sec. 141, 603-604 (1985).

²³Ronald Reagan, "Intercontinental Ballistic Missile Modernization," Weekly Compilation of Presidential Documents 22, no. 51 (22 December 1986): 1658.

²⁴See, for example, Melissa Healy, "Air Force Offers to Cancel MX Missiles on Rail Cars," Los Angeles Times, 24 April 1990, A22 and Tony Capaccio, "Air Force Ponders Terminating the MX Rail Garrison Missile," Defense Week, 10 December 1990, 1.

²⁵George Bush, "Remarks at the Aspen Institute Symposium in Aspen, Colorado," Weekly Compilation of Presidential Documents 26, no. 31 (6 August 1990): 1191-1192.

²⁶"The Peace Dividend I Seek Is Not Measured in Dollars....'," Washington Post, 28 September 1991, A23.

The Peacekeeper Rail Garrison Weapon System

The rail-garrison program called for deploying 50 Peacekeeper ICBMs on 25 trains garrisoned at up to 11 SAC bases throughout the United States (see fig. 2).²⁷ Day to day, the trains would have remained in their garrisons, dispersing across the nation's railways only during times of "national need" like the Cuban Missile Crisis and the 1973 Middle East War.²⁸ Two additional trains equipped with inert missiles carrying neither propellants nor warheads would have been used for crew training and evaluating the weapon system's operation on the nation's railways.²⁹

Each train would have consisted of at least eight functional cars: two locomotives, two missile launch cars containing a missile and its associated launch equipment, one launch control car housing a two-person missile combat crew responsible for monitoring the weapon system's status and launching the train's missiles if

²⁷USAF, FEIS, S-1. The number of garrisons was reduced to seven in November 1989. They were Barksdale AFB in Louisiana, Dyess AFB in Texas, Fairchild AFB in Washington, Grand Forks AFB in North Dakota, Little Rock AFB in Arkansas, F.E. Warren AFB in Wyoming, and Wurtsmith AFB in Michigan (Bernard E. Trainor, "50 MX Missiles Are to Be Shifted to Trains in 7 States," New York Times, 30 November 1989, B20).

²⁸USAF, FEIS, S-1.

²⁹Ibid., S-22.

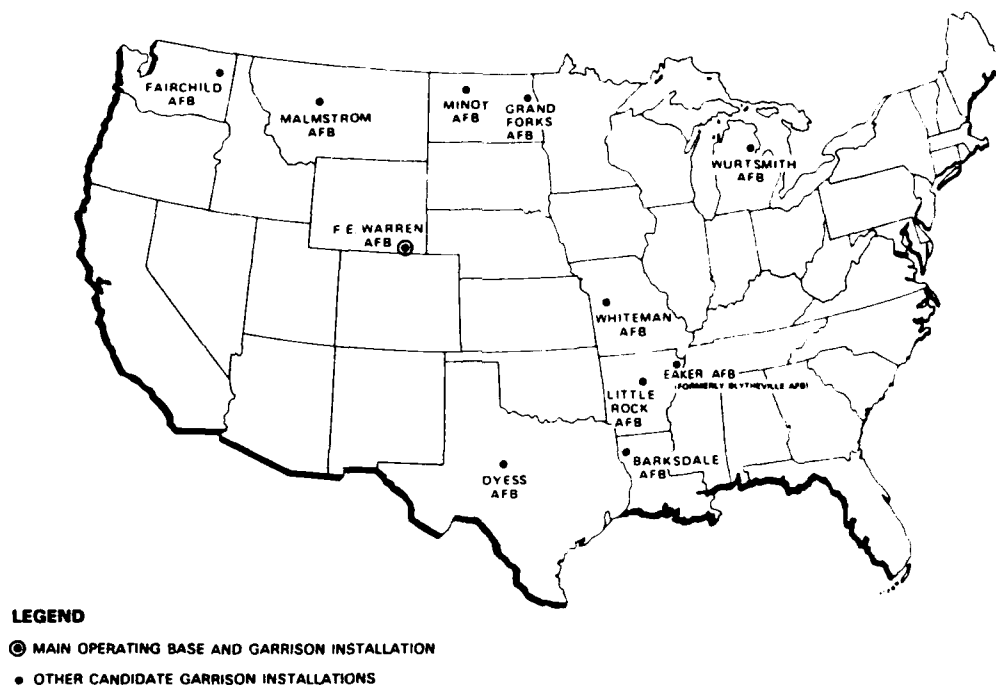


Fig. 2. Proposed Garrison Sites (USAF, FEIS, S-2)

ordered to do so, two cars for the train's security forces, and a maintenance car (see fig. 3).³⁰ Additional cars could have been added so that the train more closely resembled other rail traffic or to extend its endurance when dispersed.³¹ Each train also would have carried a 29-person crew consisting of a train commander, three individuals to run the locomotives, four missile combat crew members, fifteen security police, and six

³⁰Ibid., S-1.

³¹Barry E. Fridling and John R. Harvey, "On the Wrong Track? An Assessment of MX Rail Garrison Basing," International Security 13, no. 3 (Winter 1988/89), 117.

maintenance personnel.³² Altogether, the Air Force estimated that about 2,700 military and 1,000 civilian personnel would have been required to operate and maintain the rail-garrison system.³³

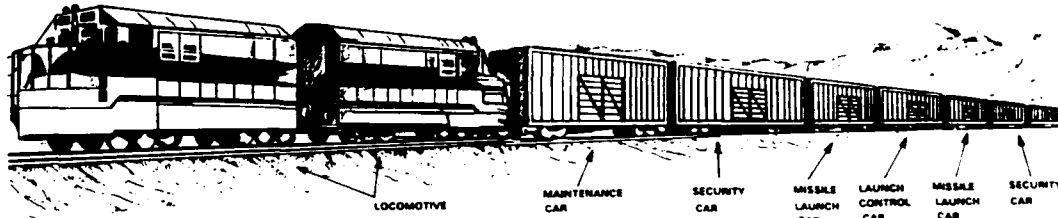


Fig. 3. The Peacekeeper Train (USAF, FEIS, S-3)

Each rail garrison would have contained an alert shelter for each of the trains assigned to it along with maintenance and security facilities (see fig. 4).³⁴ They also would have been protected by security forces, double security fences, entry detection systems around the compound's perimeter, and the use of strict entry control procedures to ensure that only authorized personnel had

³²General Accounting Office, ICBM Modernization: Status of the Peacekeeper Rail Garrison System (Washington, D.C.: General Accounting Office, January 1989), 22-23.

³³Congress, House, Committee on Armed Services, Subcommittee on Research and Development and Subcommittee on Procurement and Military Nuclear Systems, MX Rail Garrison and the Small ICBM: A Program Review, 100th Cong., 1st sess., 21 March 1988, 12.

³⁴USAF, FEIS, S-4.

access to the garrisons and the weapons within them.³⁵

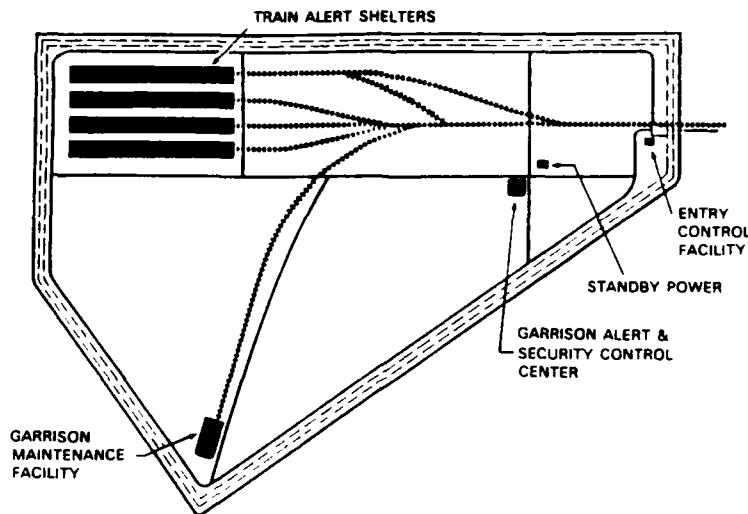


Fig. 4. Typical Rail Garrison (USAF, FEIS, S-5)

Although routine maintenance would have taken place at the garrisons, the most complicated maintenance procedures--including missile assembly, missile canisterization, and system checkout--would have occurred at F.E. Warren AFB, the weapon system's main operating base and one of the garrisons. Once a missile was assembled and placed in its launch car, it would have been transported to its assigned garrison by rail. The reentry system would have traveled separately by air and been mated with the missile at the garrison.³⁶

³⁵GAO, ICBM Modernization, 21-22.

³⁶USAF, FEIS, S-4 and S-21.

While the Peacekeeper trains would have remained garrisoned except during periods of grave international crisis, their missiles would have been on continuous alert and capable of launching promptly from their shelters.³⁷ Two "launch votes" from any two launch control cars in the garrison would have launched any or all of the up to eight missiles housed there.³⁸ Once dispersed, the trains would have had to have been stopped, their missile launch cars stabilized, and the missile guidance systems aligned prior to launch.³⁹ Unlike the in-garrison launch procedures, however, just one launch vote would have been required and would have launched only those missiles carried by that train. In both cases, backup launch control would have been available from airborne launch control centers.⁴⁰

Day to day, only one train per garrison would have been prepared to disperse within minutes of being alerted to do so. The remaining trains would have had to have

³⁷Ibid., S-21.

³⁸A launch vote consists of two missile combat crew members simultaneously turning their launch keys. Two launch crews would have been on alert at all times within each rail-garrison complex (Ibid.).

³⁹GAO, ICBM Modernization, 22.

⁴⁰Fridling and Harvey, "On the Wrong Track?," 117.

been manned prior to dispersal.⁴¹ Once dispersed, security would have been provided by the security forces assigned to the train and security systems built into the weapon system. Repair and replacement of launch-critical components and the system's operational support equipment would have been accomplished by the train's maintenance personnel.⁴²

The Air Force sought to achieve initial operational capability (IOC) for the rail-garrison system--a train with two missiles on alert--by the end of 1991. Full operational capability (FOC) was projected for the end of 1993.⁴³

The Politics of Peacekeeper Rail Garrison

Although earlier episodes of the Peacekeeper saga have been dealt with at considerable length,⁴⁴ the most recent book on the subject precedes the Congress' 1985 cap on Peacekeepers deployed in Minuteman silos and,

⁴¹GAO, ICBM Modernization, 21.

⁴²USAF, FEIS, S-21.

⁴³Ibid., S-4.

⁴⁴See John Edwards, Superweapon: The Making of MX (New York: W.W. Norton & Co., 1982); Colin S. Gray, The MX ICBM and National Security (New York: Praeger Publishers, 1981); Holland and Hoover, The MX Decision; Robert A. Hoover, The MX Controversy: A Guide to Issues and References (Claremont, CA: Regina Books, 1982); and Scoville, MX: Prescription for Disaster.

consequently, rail-garrison basing. In addition, the journal literature addressing Peacekeeper rail garrison largely has been limited to discussions of the weapon system's technical and operational characteristics and potential effect on crisis stability, while little light has been shed on the politics surrounding it.⁴⁵ Nothing, for example, has been written about rail garrison's genesis. When, where, and why did the rail-garrison concept originate? What was its relationship to rail-mobile basing, an idea seriously considered for the Minuteman ICBM but largely ignored for more than two decades afterwards? Why was rail-garrison basing, a concept virtually unheard of before October 1986, chosen over other options like closely-spaced superhard silos,

⁴⁵See, for example, General John T. Chain, Jr., USAF, "Rail Garrison Basing for Peacekeeper," National Defense 72, no. 435 (February 1988): 30-34; Russell E. Dougherty, "The Value of ICBM Modernization," International Security 12, no. 2 (Fall 1987): 163-172; Fridling and Harvey, "On the Wrong Track?," 113-141; Donald A. Hicks, "ICBM Modernization: Consider the Alternatives," International Security 12, no. 2 (Fall 1987): 173-181; Barry R. Schneider, "The Case for Mobile ICBMs," Air Force Magazine 71, no. 2 (February 1988): 60-64; John C. Toomay, "Strategic Forces Rationale--A Lost Discipline?," International Security 12, no. 2 (Fall 1987): 193-202; James J. Wirtz, "The MX Rail Garrison: How Not to Pick a Weapon," Orbis 34, no. 3 (Summer 1990): 359-370; Peter D. Zimmerman, "Rail Garrison MX," in The Future of Land-Based Strategic Missiles, ed. Barbara G. Levi, Mark Sakitt, and Art Hobson (New York: American Institute of Physics, 1989), 213-237; and Robert A. Zirkle, "Rail-Garrison MX...No Way to Run a Railroad," Arms Control Today 17, no. 8 (October 1987): 17-21.

the recognized front-runner just a few months earlier? Likewise, that which is known about the politics of Peacekeeper rail garrison following the administration's December 1986 announcement is incomplete, fragmented, and lacks a coherent theoretical underpinning, a significant consideration if we are to "ask questions worth answering and guide our research toward valid conclusions."⁴⁶

Understanding the politics of Peacekeeper rail garrison is important for a number of reasons. First of all, it would contribute to an important literature regarding the procurement of major weapon systems that includes works like Michael Armacost's The Politics of Weapons Innovation, Robert Art's The TFX Decision, Desmond Ball's The Politics of Force Levels, Edmund Beard's Developing the ICBM, Ted Greenwood's Making the MIRV, Holland and Hoover's The MX Decision, and Harvey Sapolsky's The Polaris Development.⁴⁷

⁴⁶James E. Dougherty and Robert L. Pfaltzgraff, Jr., Contending Theories of International Relations (Philadelphia: J.B. Lippincott Co., 1971), 25.

⁴⁷Michael Armacost, The Politics of Weapons Innovation: The Thor-Jupiter Controversy (New York: Columbia University Press, 1969); Robert J. Art, The TFX Decision: McNamara and the Military (Boston: Little, Brown & Co., 1968); Desmond Ball, Politics and Force Levels: The Strategic Missile Program of the Kennedy Administration (Berkeley: University of California Press, 1980); Edmund Beard, Developing the ICBM: A Study in Bureaucratic Politics (New York: Columbia University Press, 1976); Ted Greenwood, Making the MIRV: A Study of

Second, it completes the Peacekeeper story by drawing together the bits and pieces of available information, determining what information is missing, and attempting to complete the puzzle. At the end of their 1985 study, Holland and Hoover noted that "the end of the MX controversy is nowhere in sight."⁴⁸ Now that the end has come for "the most hotly contested weapon in the annals of U.S. defense policy,"⁴⁹ the rest of the story deserves to be told.

Third, "decisions about nuclear weapons are among the most important and far reaching made by the human race."⁵⁰ While nuclear war is less likely than conventional or low-intensity conflict, a failure to adequately deter the former would have catastrophic consequences for the United States and the world. Therefore, if for no other reason, it is important that we understand how procurement decisions regarding nuclear weapons are made.

Defense Decision Making (Cambridge, MA: Ballinger Publishing Co., 1975); Holland and Hoover, The MX Decision; and Harvey Sapolsky, The Polaris System Development: Bureaucratic and Programmatic Success in Government (Cambridge: Harvard University Press, 1972).

⁴⁸Holland and Hoover, The MX Decision, 260.

⁴⁹Lindsay, Congress and Nuclear Weapons, 11.

⁵⁰Holland and Hoover, The MX Decision, 1.

Finally, examining the rail-garrison program from a bureaucratic politics perspective provides yet another test of that model--"the approach used most frequently by analysts to explain procurement decisions."⁵¹ The discussion that follows briefly describes the model's defining characteristics, suggests a number of propositions that can be tested, and discusses some of the model's limitations.

The Bureaucratic Politics Model

In his oft-cited examination of the levels-of-analysis problem, J. David Singer noted that:

In any area of scholarly inquiry, there are always several ways in which the phenomena under study may be sorted and arranged for purposes of systematic analysis. Whether in the physical or social sciences, the observer may choose to focus upon the parts or upon the whole, upon the components or upon the system.⁵²

The case study that follows employs the bureaucratic politics approach to defense policymaking, a form of micro-level analysis that essentially is an amalgam of Graham Allison's governmental politics and organizational

⁵¹Ibid., 3.

⁵²J. David Singer, "The Level-of-Analysis Problem in International Relations," in International Politics and Foreign Policy: A Reader in Research and Theory, ed. James Rosenau (New York: Free Press, 1969), 20.

process models.⁵³

In contrast with the realist assumption that states are unitary, rational actors,⁵⁴ the bureaucratic politics model holds that defense policymaking is best understood in terms of individuals and organizations competing with one another to promote their own means and ends. Regarding individual policymakers, for example, Allison wrote that:

The "leaders" who sit on top of the organizations are not a monolithic group. Rather, each individual in this group is, in his own right, a player in a central, competitive game. The name of the game is politics: bargaining along regularized circuits among players positioned hierarchically within the government.⁵⁵

Therefore, Allison argued, "it is necessary to identify

⁵³Allison's governmental politics model focuses on the competition among individuals while the organizational process model focuses on the role organizations play in the policymaking process. See Graham Allison, Essence of Decision: Explaining the Cuban Missile Crisis (Boston: Little, Brown & Co., 1971), especially 67-100 and 144-184. In a subsequent article, Allison and Halperin in fact combined these models. See Graham Allison and Morton Halperin, "Bureaucratic Politics: A Paradigm and Some Policy Implications," in Theory and Policy in International Relations, ed. Raymond Tanter and Richard H. Ullman (Princeton: Princeton University Press, 1972), 40-79.

⁵⁴A brief discussion of the realist perspective can be found in Paul R. Viotti and Mark V. Kauppi, International Relations Theory: Realism, Pluralism, Globalism (New York: Macmillan Publishing Co., 1987), 32-67. Also see Allison, Essence of Decision, 10-38.

⁵⁵Allison, Essence of Decision, 144.

the games and players, to display the coalitions, bargains, and compromises, and to convey some feel for the confusion" if a particular policy decision is to be fully understood.⁵⁶

Likewise, Morton Halperin noted that organizations favor policies and strategies that make them, as they have defined themselves, more powerful, while resisting efforts to diminish their essence or to share it with others.⁵⁷ The Air Force's essence, for example, largely has been associated with strategic bombardment using manned aircraft, "the centerpiece of the air strategy and the bid for an independent Air Force."⁵⁸ Thus, the Air Force was uninterested in ballistic missiles until Soviet technological advances in this area became apparent and the other armed services expressed an interest in them.⁵⁹ This bias continues today. As Carl Builder characterized the Air Force's intraservice distinctions, "the division

⁵⁶Ibid., 146.

⁵⁷Morton H. Halperin with the assistance of Priscilla Clapp and Arnold Kanter, Bureaucratic Politics and Foreign Policy (Washington, D.C.: Brookings Institution, 1974), 39-40.

⁵⁸Carl H. Builder, The Masks of War: American Military Styles in Strategy and Analysis (Baltimore: Johns Hopkins University Press, 1989), 70.

⁵⁹See Beard, Developing the ICBM, 221-222.

is between pilots and all others."⁶⁰

In addition to asserting that "where you stand (on a policy issue) depends on where you sit (in the bureaucracy),"⁶¹ the bureaucratic politics model also notes that power is distributed unevenly among individuals and organizations, thereby affecting their ability to influence the policymaking process.⁶² Builder, for example, argued that the military services are "the most powerful institutions in the American national security arena . . . not the Department of Defense [(DOD)] or Congress or even their commander in chief, the president."⁶³ As another analyst explained:

The combination of inadequate formal training or background in strategic planning and a limited tenure in office historically has constrained the ability of both the president and the defense secretary to affect the vast number of decisions that contribute to the size and shape of the annual defense budget. Predictably they rely heavily on the expertise of the military services and career civil

⁶⁰Builder, The Masks of War, 26.

⁶¹Quoted in David C. Kozak, "The Bureaucratic Politics Approach: The Evolution of the Paradigm," in Bureaucratic Politics and National Security: Theory and Practice, ed. David C. Kozak and James M. Keagle (Boulder, CO: Lynne Rienner Publishers, 1988), 7.

⁶²I. M. Destler, Presidents, Bureaucrats and Foreign Policy: The Politics of Organizational Reform (Princeton: Princeton University Press, 1974), 55.

⁶³Builder, The Masks of War, 3.

servants at DOD.⁶⁴

Thus, those policymakers with broader mandates and responsibilities than the armed services out of necessity must conserve their time, energy, and political capital by carefully selecting those defense issues with which they become involved. If not, Philip Odeen wrote, "they will be unable to get into the issues in sufficient depth, and [the] Defense [Department] will overwhelm them with details and analysis."⁶⁵

Moreover, the origins of a policymaker's power are many and diverse. The Secretary of Defense, for instance, derives his power from a number of sources, including formal statutory authority like the National Security Act of 1947 and its various amendments, the President's trust and support, the support of key military and civilian members of his department, his access to information and analysis, and his personal

⁶⁴Alice Maroni, "The Defense Budget," in Presidential Leadership and National Security: Style, Institutions, and Politics, ed. Sam C. Sarkesian (Boulder, CO: Westview Press, 1984), 196-197.

⁶⁵Philip Odeen, "The Role of the National Security Council in Coordinating and Integrating US Defense and Foreign Policy," in American Defense Policy, 6th ed., ed. Schuyler Foerster and Edward N. Wright (Baltimore: Johns Hopkins University Press, 1990), 559.

prestige.⁶⁶ In addition, much of the Defense Secretary's influence is derived from his willingness to use his power and his ability to persuade others. As former Secretary of Defense James Schlesinger observed:

While the responsibilities [of the Secretary of Defense] are very imposing, they are not matched by the powers of the Office. . . . The Office provides the Secretary simply with a license to persuade outside parties. Even within the [Pentagon] quite frequently it's only a license to persuade.⁶⁷

Since power is decentralized and the various actors have their own preferred ends and means, policymaking requires coalition building, bargaining, and compromise. Or, as Roger Hilsman put it:

The test of a policy is not whether it is in fact the most rational means for achieving an agreed-upon objective or whether the objective is in the true national interest. The test of a policy is whether enough of the people and organizations having a stake in the policy and holding power agree to that policy.⁶⁸

⁶⁶James H. Dixon and Associates, National Security Policy Formulation: Institutions, Processes, and Issues (Lanham, MD: University Press of America, 1984), 57-59.

⁶⁷Quoted in Richard A. Stubbing with Richard A. Mendel, The Defense Game: An Insider Explores the Astonishing Realities of America's Defense Establishment (New York: Harper & Row, 1986), 262. For an examination of the President's "power to persuade" see Richard E. Neustadt, Presidential Power: The Politics of Leadership From FDR to Carter (New York: Macmillan Publishing Co., 1980), 26-43.

⁶⁸Roger Hilsman, The Politics of Policy Making in Defense and Foreign Affairs: Conceptual Models and Bureaucratic Politics (Englewood Cliffs, NJ: Prentice-

This "strain toward agreement"⁶⁹ is made easier by what Halperin and Kanter called "widely shared values and images of international reality" as well as certain "rules of the game"--"the constitutional provisions, statutes, regulations, procedures, customs, traditions, etc. which organize the government and structure the process by which decisions are made and actions are undertaken."⁷⁰

Finally, the bureaucratic politics model holds that policymaking is an incremental rather than a rational process. Whereas the realist perspective assumes that states pursue a hierarchically-ordered set of values and objectives by examining the advantages and disadvantages of all possible solutions and selecting that solution with the greatest net benefit, the bureaucratic politics approach argues that various ends and means are neglected and decisions are arrived at through a process Herbert Simon called "satisficing"--adopting a solution that can be agreed upon by the various actors involved rather than

Hall, 1987), 65.

⁶⁹Ibid., 69.

⁷⁰Morton H. Halperin and Arnold Kanter, "The Bureaucratic Perspective: A Preliminary Framework," in Readings in American Foreign Policy: A Bureaucratic Perspective, ed. Morton H. Halperin and Arnold Kanter (Boston: Little, Brown & Co., 1973), 19.

searching for the single best solution.⁷¹ As Allison and Halperin put it, "the actions of a nation result not from an agreed upon calculus of strategic interests, but rather from pulling and hauling among individuals with differing perceptions and stakes."⁷²

Testing the Bureaucratic Politics Model

In their earlier study of Peacekeeper decisionmaking, Holland and Hoover enumerated and tested two sets of propositions suggested by the bureaucratic politics model. The first addressed the defense acquisition process through full-scale development--the "inner layer"--while the second was related to the procurement and deployment of weapon systems--the "outer layer."⁷³ Their propositions are used here as well for several reasons. First of all, although imperfect, they are generally representative of what the bureaucratic politics model predicts regarding weapons procurement decisions. Second, using the same propositions provides congruity between the two case studies and facilitates the comparison of their results. As Alexander George and

⁷¹Charles E. Lindblom, "The Science of 'Muddling Through'," Public Administration Review 19, no. 2 (Spring 1959): 81.

⁷²Allison and Halperin, "Bureaucratic Politics," 57.

⁷³Holland and Hoover, The MX Decision, 18.

Richard Smoke pointed out, using a standardized set of questions or propositions across cases can "uncover similarities . . . that suggest generalizations" while permitting the systematic investigation of the differences between them.⁷⁴ None of the other books regarding the Peacekeeper missile employed an explicit theoretical framework. Finally, doing so tests Holland and Hoover's conclusion that:

Analysts who attempt an examination of the weapon system procurement process without recognizing that under certain circumstances the public and congressional arenas will be active ones, and that strategic, foreign policy, and domestic political forces can be salient, even within the executive branch, will miss the full richness and complexity of the decision-making process.⁷⁵

If their findings are indicative of a "new direction in U.S. weapons procurement policy" as the subtitle of their book implies, these factors should play a significant role in the politics of Peacekeeper rail garrison as well. Holland and Hoover's propositions follow.⁷⁶

⁷⁴Alexander L. George and Richard Smoke, Deterrence in American Foreign Policy: Theory and Practice (New York: Columbia University Press, 1974), 96. George and Smoke termed this "the method of focused comparison." In an earlier work, Sidney Verba called this process the "disciplined configurative approach." See Sidney Verba, "Some Dilemmas in Comparative Research," World Politics 20, no. 1 (October 1967): 114-115.

⁷⁵Holland and Hoover, The MX Decision, 245.

⁷⁶Their propositions are listed in *Ibid.*, 26-28.

Propositions for the Inner Layer

1. Ideas for new weapons or refinements of old weapons are seldom the result of deliberate strategic policy analysis. Rather, they are the product of organizational doctrines, technological opportunities, perceptions of enemy threat, and/or incomplete and often vague strategic attitudes. More accurately, these ideas involve the interaction of engineering groups [assigned to the Under Secretary of Defense for Acquisition],⁷ design labs in industry, engineering elements in think tanks, and the subunit of the military service with ultimate responsibility for the use of the new or refined weapon.

2. During the design, research, development, and testing stage, [in other words, through full-scale development,] procurement decisions about weapon ideas continue to be determined by the interaction of engineering groups [assigned to the Under Secretary of Defense for Acquisition], design labs in industry, engineering elements in think tanks, and the subunit of the military service with ultimate responsibility for the use of the new or refined weapon being the most significant actor.

3. The mission of the subunit of the military service with the ultimate responsibility in the military for the use of the new weapon along with the power of that subunit are the more important factors in the success of a weapon system (i.e., the attractiveness of the weapon to draw support within the Pentagon as compared to other alternatives) than the larger strategic and force posture considerations of U.S. national security policy.

⁷The original proposition listed the Director of Defense Research and Engineering (DDR&E) here. Since 1986, however, DDR&E has been assigned to the Under Secretary of Defense for Acquisition.

4. Senior political officials outside the Pentagon may disturb decisions at this layer of action on procurement but rarely control it.

5. Political officials outside the executive branch as well as extragovernmental individuals will seldom seek to influence the inner layer procurement decisions, let alone disturb or even control them.

6. The hundreds of interrelated yet individual decisions during design, research, development, and testing cause the character of procurement decisions in this layer of activities to be incremental rather than synoptic.

7. The likelihood that a weapon system will reach design, research, development, and testing depends on the effectiveness of its advocates to continually promote the economic and political well-being of their project, for the longer a weapon system survives during this inner layer of procurement activities the greater the momentum that builds for the weapon. The repeated individual choices begin to establish an irresistible bureaucratic inertia.

Propositions for the Outer Layer

8. When the decision for a weapon program reaches the point of acquisition and deployment, the number of participants with interests in a particular weapon system tends to increase significantly, especially inside the executive branch.

9. During the acquisition and deployment stage, more actors from the congressional and public arena[s] are activated. However, the congressional and public arenas remain indirect and peripheral to the decision process for weapon procurement.

10. The principal factor for producing what congressional involvement there is in

procurement is porkbarrel.

11. The acquisition and deployment of a weapon program continues to depend on the capability of its advocates to promote the economic, strategic, and political well-being of their project.

12. Those weapon systems being considered for acquisition and deployment most likely to engender significant support (i.e., that will be least controversial) are those where

a) the missions of the organization responsible for the new weapon converges with the capability of the weapon;

b) technological opportunity converges with a consensus on national policy;

c) the strategic requirements or foreign policy needs converge with the weapon system's capabilities;

d) the cost of deploying the weapon system in domestic terms (i.e., money, land, environmental impacts, and jobs) are likely to be relatively less than other alternatives; and

e) the advantages of deploying the weapon system in domestic terms (i.e., contracts and jobs) are likely to be relatively greater than other alternatives.

13. Weapon programs are seldom slowed or overturned once initial approval of acquisition is achieved in the executive branch, and only a presidential directive is likely to slow or overturn that decision. However, the decision to modify, while executive based, may be made in anticipation of public or congressional resistance deemed threatening enough to warrant change.

14. The "rules of the game" introduced by the secretary of defense and the president shape how and by whom acquisition and deployment decisions will be made within the executive

branch.

The Model's Limitations

In Contending Theories of International Relations, James Dougherty and Robert Pfaltzgraff observed that "no theory adequate to the complexity of international reality presently exists."⁷⁸ This generalization, of course, includes the bureaucratic politics model, an approach that certainly has seen its share of criticism.⁷⁹ Holland and Hoover's research, however, suggests that two of those criticisms are especially likely to influence the politics of Peacekeeper rail garrison. The first addresses certain nonbureaucratic forces that can affect defense policymaking, while the

⁷⁸Dougherty and Pfaltzgraff, Contending Theories, 15.

⁷⁹See, for example, Robert J. Art, "Bureaucratic Politics and American Foreign Policy: A Critique," Policy Sciences 4, no. 4 (December 1973): 467-490; Dan Caldwell, "Bureaucratic Foreign Policy-Making," American Behavioral Scientist 21, no. 1 (September/October 1977): 87-110; Lawrence Freedman, "Logic, Politics and Foreign Policy Processes: A Critique of the Bureaucratic Politics Model," International Affairs 52, no. 3 (July 1976): 434-449; Holland and Hoover, The MX Decision, 28-38; Stephen D. Krasner, "Are Bureaucracies Important? (Or Allison Wonderland)," Foreign Policy, no. 19 (Summer 1972): 159-179; James A. Nathan and James K. Oliver, "Bureaucratic Politics: Academic Windfalls and Intellectuals Pitfalls," Journal of Political and Military Sociology 6, no. 1 (Spring 1978): 81-91; and Amos Perlmutter, "The Presidential Political Center and Foreign Policy: A Critique of the Revisionist and Bureaucratic-Political Orientations," World Politics 27, no. 1 (October 1974): 87-106.

second concerns the role nonbureaucratic actors play in such matters.

Although Allison acknowledged that "shared images" and "national patterns" provide the context within which the bureaucratic politics model operates,⁸⁰ Holland and Hoover concluded that the model underestimated the effect strategic, foreign policy, and domestic political forces had on decisions regarding the Peacekeeper ICBM. For instance, they noted that the survivability of the various basing modes proposed for the missile as well as the strategic utility of the missile itself were essential components of the Peacekeeper debate. Similarly, the Peacekeeper program was influenced by arms control considerations and the weapon system's financial, environmental, and socioeconomic costs.⁸¹

Another potential limitation of the bureaucratic politics model is its relative inattention to the roles the Congress and the public can play in the defense policymaking process. Regarding the legislative branch, Holland and Hoover found that:

it was Congress, motivated by strategic concerns, that forced the Ford administration to postpone its plan to temporarily retrofit the MX in Minuteman silos; that compelled the

⁸⁰Allison, Essence of Decision, 258.

⁸¹Holland and Hoover, The MX Decision, 29-30.

Carter administration to effect changes in the MPS basing mode; that blocked the Reagan administration's efforts to deploy the missiles in a dense pack scheme; and that has postponed indefinitely full deployment of the missile.⁸²

Likewise, the environmental and socioeconomic effects associated with horizontal multiple protective shelters--shuttling 200 Peacekeeper missiles among 4,600 shelters spread over 40,000 square miles of Nevada and Utah--led to a large and vocal coalition of individuals and interest groups that opposed the basing scheme and contributed to its cancellation.⁸³

In the model's defense, however, it should be noted that the early bureaucratic politics literature preceded the Congress' resurgence regarding foreign and defense policy while later efforts paid considerably more attention to the legislature's expanded role. In 1976, for example, Allison and Szanton wrote that the Vietnam War and Watergate led to a situation where:

Congress is now deeply immersed in foreign policy making, and in our judgment . . . will remain so. Indeed we believe this congressional involvement will mark the largest single difference between American foreign policy making in the last quarter of this century and that of the preceding

⁸²Ibid., 252.

⁸³Ibid., 187-214.

decades.⁸⁴

As numerous analysts have pointed out, the Congress' activism also grew out of the decentralization of power within the Congress--the result of measures like the Legislative Reorganization Act of 1970 and the 1973 Subcommittee Bill of Rights--and "the explosion of personnel and information resources available to individual members [of the legislature]."⁸⁵

Whereas the House and Senate armed services committees each had just nine professional staff members in 1969, by 1985 they numbered 40 and 32 respectively.⁸⁶ Moreover, two new organizations, the Congressional Budget Office and the Office of Technology Assessment, were created to provide the Congress with additional independent information and analysis, while the number of defense specialists assigned to the General Accounting Office and the Congressional Research Service increased

⁸⁴Graham Allison and Peter Szanton, Remaking Foreign Policy: The Organizational Connection (New York: Basic Books, 1976), 99.

⁸⁵Richard Haass, "The Role of the Congress in American Security Policy," in American Defense Policy, 5th ed., ed. John F. Reichart and Steven R. Sturm (Baltimore: Johns Hopkins University Press, 1982), 550-551. Also see Blechman, The Politics of National Security, 23-43 and James M. Lindsay, "Congress and Defense Policy: 1961 to 1986," Armed Forces and Society 13, no. 3 (Spring 1987): 371-401.

⁸⁶Blechman, The Politics of National Security, 12.

substantially.⁸⁷ The public's ability to influence defense policymaking was enhanced by legislation like the Freedom of Information Act, the National Environmental Protection Act, and the Federal Land Policy and Management Act.⁸⁸

To account for the role of nonbureaucratic forces and actors, Holland and Hoover suggested that the following propositions be added to those listed above:⁸⁹

15. Strategic policy considerations will be significant factors in procurement decisions in cases where the weapon system's strategic advantages are uncertain.

16. Foreign policy considerations will be significant factors in procurement decisions in cases where the weapon system's foreign policy advantages are uncertain.

17. Environmental considerations will be significant factors in procurement decisions in cases where the weapon system will be environmentally costly.

18. Socioeconomic considerations will be significant factors in procurement decisions where the weapon system will consume large amounts of resources (material and financial) and be socially costly.

19. The president will be a decisive participant in cases where the strategic, foreign policy, and/or domestic considerations of the weapon system are in conflict with administration policies.

⁸⁷Ibid., 42-43.

⁸⁸Holland and Hoover, The MX Decision, 34.

⁸⁹Ibid., 38.

20. Congress will be an important arena in cases where the strategic, foreign policy, and/or domestic considerations of the weapon system are in conflict with constituent and/or personal policy preferences.

21. The public arena will be an important one in cases where the costs and/or benefits of deploying the weapon system pose a clear and present threat to the interests of individuals.

Methodology

As Harry Eckstein noted, there are several types of and uses for case studies in political science. There are configurative-idiographic case studies that treat their subjects as unique phenomena and make no attempt to generalize from them to produce or refine theory, disciplined-configurative case studies that apply a theoretical framework to phenomena in order to better understand and explain them, heuristic case studies that "attempt to stimulate the imagination toward discerning important general problems and possible theoretical solutions," plausibility probes that seek to determine whether a theory has sufficient "potential validity" to warrant testing it more fully, and crucial-case studies that examine those cases that are most (least) likely to invalidate (validate) a particular theory.⁹⁰

⁹⁰Harry Eckstein, "Case Study and Theory in Political Science," in Handbook of Political Science, vol. 7, Strategies of Inquiry, ed. Fred I. Greenstein and Nelson

The case study that follows combines two of the aforementioned types. On the one hand, it is disciplined-configurative in that it uses those propositions suggested by the bureaucratic politics model to describe and explain the rise and fall of the rail-garrison program. On the other hand, it is a crucial case study of Holland and Hoover's additional propositions.

These objectives are addressed by analyzing the information available in existing sources like newspaper and journal articles, books, speeches, letters, meeting notes and a variety of government documents, as well as through almost 70 interviews with individuals who were engaged in various aspects of the rail-garrison program.⁹¹ The last source is especially important regarding events within the executive branch where records of meetings and decisions often are not kept, are classified, or are considered politically sensitive. The positions of key legislators and the decisions of the Congress and its committees are much more thoroughly recorded in documents like the Congressional Record, the

W. Polsby (Reading, MA: Addison-Wesley Publishing Co., 1975), 96-123.

⁹¹Only those interviews specifically cited are listed in the bibliography.

transcripts of hearings, and committee reports.

As Allison and Halperin noted, a government's actions are "the result of bargaining among players" along "regularized circuits."⁹² Therefore, those individuals and organizations likely to be involved in the politics of Peacekeeper rail garrison initially were determined via the formal channels used to make major defense acquisition decisions--the National Security Council (NSC), the Defense Acquisition Board (DAB), the Defense Department's Planning, Programming, and Budgeting System (PPBS), and the executive-legislative budget process--and generally were confirmed as research for this case study progressed. A brief description of each follows.

While many defense policy decisions are made at lower levels of the government, "some questions must be decided by the president."⁹³ In cases such as these, presidents tend to use the National Security Council. Created by the National Security Act of 1947 to "advise the President with respect to the integration of domestic, foreign, and military policies relating to the national security," the NSC's statutory members are the

⁹²Allison and Halperin, "Bureaucratic Politics," 43.

⁹³Odeen, "The Role of the National Security Council," 553.

President, the Vice President, the Secretary of Defense, and the Secretary of State. The President's Assistant for National Security Affairs, otherwise known as the National Security Advisor, manages the NSC process and staff.⁹⁴

While the NSC addresses a variety of national security issues, the Defense Acquisition Board's sole task is to review major defense programs prior to each phase in the procurement process to determine if they should be continued, modified, or canceled.⁹⁵ The DAB's members are the Under Secretary of Defense for Acquisition (the chair), the Vice Chairman of the Joint Chiefs of Staff (the vice chair), the Service Acquisition Executives of the three military departments, the Assistant Secretary of Defense for Program Analysis and Evaluation, the Comptroller of the Department of Defense, the Director of Defense Research and Engineering, and the

⁹⁴For discussions of the NSC and how it operates, see *Ibid.*, 552-563; Robert C. McFarlane with Richard Saunders and Thomas C. Shull, "The National Security Council: Organization for Policy Making," in The Presidency and National Security Policy, ed. R. Gordon Hoxie (New York: Center for the Study of the Presidency, 1984), 261-273; and Paul Schott Stevens, "The National Security Council: Past and Prologue," Strategic Review 27, no. 1 (Winter 1989): 55-62.

⁹⁵Department of Defense, "Defense Acquisition," DOD Directive 5000.1, 23 February 1991, 2-6.

Director of Operational Test and Evaluation.⁹⁶ The defense acquisition process currently consists of five phases: concept exploration and definition, demonstration and validation, engineering and manufacturing development (more commonly known as full-scale development), production and deployment, and operations and support.

Within the Pentagon, the defense budget is formulated through the Planning, Programming, and Budgeting System. Instituted by Robert McNamara, the PPBS begins with the Secretary of Defense announcing his department's "broad policy objectives and military strategy" in a document called the Defense Planning Guidance (DPG). Next, each of the military services develops a six-year defense program, known as Program Objectives Memoranda (POMs), describing how they intend to fulfill the DPG. The POMs then are reviewed by a number of Defense Department agencies that, in turn, suggest modifications to the Defense Planning and Resources Board. Once the revised POMs have been approved by the Secretary of Defense, they become Program Decision Memoranda and are returned to the services so that they can promulgate their Budget Estimate Submissions (BESs). The BESs then are reviewed, revised,

⁹⁶Ibid., 2-5.

and recorded as Program Budget Decisions (PDBs). Together the PDBs constitute the Defense Department's budget request, which is submitted to the President for his approval and incorporation into the executive budget.⁹⁷

In January of each year, the President submits his budget request to the Congress, and the legislature begins its deliberations on the defense budget. This two-track process, consisting of an authorization phase and an appropriations phase, is dominated by the House and Senate armed services committees and the defense subcommittees of the House and Senate appropriations committees.⁹⁸

Whenever possible, the principal participants were interviewed for this study, although in most cases their staff members possessed a more detailed recollection of events concerning Peacekeeper rail garrison. To control

⁹⁷Ibid., 2-9 through 2-12. The Defense Planning and Resources Board consists of the Deputy Secretary of Defense (the chair), the secretaries of the military departments, the Chairman of the Joint Chiefs of Staff, the Under Secretaries of Defense for Acquisition and Policy, the Assistant Secretary of Defense for Program Analysis and Evaluation, and the Comptroller of the Department of Defense (Ibid., 2-9).

⁹⁸Recent discussions of the Congress' role in the defense budget process can be found in Blechman, The Politics of National Security, 23-62 and Lindsay, Congress and Nuclear Weapons.

for the usual problems associated with faulty memories and/or a desire to be portrayed in a favorable light, multiple sources were used to reconstruct significant events. Unless they requested anonymity, interviewees are identified by name. Although candid discussion was encouraged, classified information was specifically avoided.

How This Study is Organized

As mentioned above, more than 30 basing modes were considered for the Peacekeeper prior to rail-garrison basing. Chapter 2 provides an historical foundation for the case study that follows by discussing those basing modes that received the most serious consideration: air mobility, the trench concept, multiple protective shelters, closely-spaced basing, and silo deployment. It also examines rail mobility, a basing mode that was considered for a portion of the Minuteman force then virtually ignored until 1985.

The next three chapters examines the politics of Peacekeeper rail garrison. Beginning with the breakdown of the Scowcroft Commission compromise and the Congress' cap on the number of Peacekeepers that could be deployed in Minuteman silos, Chapter 3 focuses on the search for a follow-on basing mode, a quest that ended with rail

garrison's selection in December 1986. After reviewing the debate regarding Peacekeeper rail garrison's survivability, effect on crisis stability, cost, public interface, and security, Chapter 4 discusses the weapon system's fortunes during the remaining years of the Reagan administration. Chapter 5 chronicles the growing but fragile support for a Scowcroft Commission-style compromise during 1989, the precipitous decline in that support the following year, and rail garrison's demise by the end of 1991.

Finally, Chapter 6 uses the propositions presented in this chapter as a framework for summarizing the study's findings, analyzing the bureaucratic politics model's applicability to the rail-garrison program, and assessing the impact of nonbureaucratic forces and actors on the politics of Peacekeeper rail garrison.

CHAPTER 2

PEACEKEEPER BASING THROUGH SILO DEPLOYMENT

The dilemmas of ICBM survivability are devilish. . . . Most proposed solutions for this problem seem to have at the center seeds of new dilemmas.

Sen. John McIntyre¹

As was noted in Chapter 1, the Peacekeeper program's central objectives were to increase the United States' ability to destroy hardened targets like Soviet missile silos and reduce the vulnerability of the U.S. ICBM force. Although both objectives generated considerable debate, the former was partially met when 50 Peacekeepers--one quarter of the number originally envisioned--were deployed beginning in 1986. How they were deployed, however, failed to satisfy the program's second objective. Contrary to their own warnings that the growing number, yield, and accuracy of Soviet warheads was creating a "window of vulnerability" that, at worst, would leave the U.S. ICBM force open to almost complete destruction by a Soviet first strike or, at

¹Quoted in John Edwards, Superweapon: The Making of the MX (New York: W.W. Norton & Co., 1982), 95.

best, would render the U.S. and its allies vulnerable to Soviet nuclear blackmail,² the Reagan administration sought to deploy 100 Peacekeepers in modified Minuteman silos. The Congress, however, limited to 50 the number that could be deployed in that manner.

Although the Peacekeeper ultimately was housed in Minuteman silos, more than 30 basing modes were examined for the missile,³ prompting Colin Gray to write that "scarcely any interesting land, lake, canal, pond, airborne, or coastal-water basing option for ICBMs that ingenuity could devise has lacked for a study (often many studies) or a persuasive-sounding group of analyst-advocates."⁴ Of that number, however, only five received serious consideration from those military and

²See, for example, Paul H. Nitze, "Assuring Strategic Stability in an Era of Detente," Foreign Affairs 54, no. 2 (January 1976): 207-232 and Paul N. Nitze, "Deterring Our Deterrent," Foreign Policy, no. 25 (Winter 1976-1977): 195-210. Early arguments against the window of vulnerability can be found in John D. Steinbruner and Thomas M. Garwin, "Strategic Vulnerability: The Balance Between Prudence and Paranoia," International Security 1, no. 1 (Summer 1976): 138-181.

³See, for example, Department of Defense, Office of the Deputy Under Secretary of Defense for Research and Engineering (Strategic and Space Systems), ICBM Basing Options: A Summary of Major Studies to Define a Survivable Basing Concept for ICBMs (Washington, D.C.: Department of Defense, December 1980).

⁴Colin S. Gray, The MX ICBM and National Security (New York: Praeger Publishers, 1981), 42.

administration officials who struggled with this difficult issue over the years. They were the air-mobile system, the trench concept, multiple protective shelters, closely-spaced basing, and silo deployment.

This chapter briefly discusses each of these basing options--several of which were considered again for the Peacekeeper following the Congress' cap on the missile in Minuteman silos--as an historical foundation for the case study that follows. It also examines rail mobility, the forerunner of rail-garrison basing.

The Air-Mobile System

One of the first Peacekeeper basing modes to receive serious consideration was the air-mobile system. While several versions were examined over the years--the most recent, Big Bird, was proposed in 1981⁵--the baseline

⁵The Big Bird concept would have placed the Peacekeeper on C-5As until a propeller-driven aircraft largely constructed from composite materials and capable of remaining aloft for two days unrefueled and over five days with refueling was available for deployment. This revolutionary new aircraft would have carried a single Peacekeeper ICBM. See, for example, Clarence A. Robinson, Jr., "Weinberger Pushes Strategic Airmobile MX Concept," Aviation Week and Space Technology, 3 August 1981, 16-18. The idea, however, quickly ran into strong opposition within the Congress and the Air Force. See, respectively, Pat Towell, "Tower Challenges New Air-Mobile MX Plan," Congressional Quarterly Weekly Report, 8 August 1981, 1441-1442 and "USAF Analysis Attacks Airmobile MX Concept," Aviation Week and Space Technology, 17 August 1981, 30-31.

concept called for 75 wide-body aircraft each carrying two modified Peacekeeper ICBMs.⁶ Maintained on ground alert at airfields in the central United States, these aircraft would have "dashed on warning" of a Soviet attack.⁷ Once airborne, they could have remained aloft for five to six hours without refueling and would have launched their missiles by dropping them from the back of the aircraft.⁸ In October 1974, the system's feasibility was demonstrated when a Minuteman I was successfully launched from an Air Force C-5A.⁹

The air-mobile Peacekeeper's chief advantage was its "price to attack" once adequately dispersed.¹⁰ According to the Office of Technology Assessment (OTA):

⁶Since the air-mobile Peacekeeper would have been launched from an altitude of 10,000 to 30,000 feet, less fuel was required in the missile's first stage. Thus, it would have been lighter than a standard Peacekeeper, thereby allowing each aircraft to carry two missiles (Office of Technology Assessment, MX Missile Basing [Washington, D.C.: GPO, 1981], 219). Other versions of the concept can be found in Ibid., 219-21.

⁷Ibid., 217.

⁸Ibid., 222.

⁹David Gold, Christopher Paine, and Gail Shields, Misguided Expenditure: An Analysis of the Proposed MX Missile System (New York: Council on Economic Priorities, 1981), 45.

¹⁰Price to attack is the number of warheads required to destroy one of the adversary's warheads. It is used here as a measure of a basing mode's survivability.

Within a half hour of takeoff, a fleet of air mobile aircraft located at bases within the north-central region of the United States . . . could be dispersed over an area totaling about 1 million mi². The Soviets could therefore destroy about one-eighth of the force (perhaps 20 or so MX missiles) for each 1,000 [megaton] expended. Destruction of a sizable fraction of the force would therefore require an enormous expenditure of megatonnage.¹¹

Soviet submarine-launched ballistic missiles (SLBMs), however, can reach the central U.S. in less than fifteen minutes, thereby rendering the air-mobile Peacekeeper highly dependent on reliable and timely attack warning. "In this respect," the OTA concluded, "an air mobile intercontinental ballistic missile (ICBM) force would replicate a significant failure mode of another leg of the strategic Triad--the bomber force."¹² Or, as Gray characterized the concept, "this system looked more like a lightening rod for a surprise attack by SLBMs fired on depressed trajectories, than a stabilizing successor to silo-based Minuteman."¹³

The air-mobile system's other disadvantages included its endurance, cost, accuracy, and ability to communicate. The system's endurance was largely dictated

¹¹OTA, MX Missile Basing, 224.

¹²Ibid., 217.

¹³Gray, The MX ICBM, 83.

by the aircraft's ability to remain aloft. If the aircraft could not be refueled, their missiles would have to be used or lost. In addition, the system would have been very expensive--about \$40 billion in fiscal year (FY) 1980 dollars for 75 aircraft and 150 missiles on ground alert at 38 airfields over a 13 year period. A continuous-airborne version was estimated at \$91 billion.¹⁴ Moreover, neither cost estimate included the warning sensor; command, control and communications (C³); and missile guidance upgrades necessary to improve the system's survivability, responsiveness, and accuracy.¹⁵ Without these upgrades, air-mobile Peacekeeper's warning time would have been limited, its accuracy would have been less than a silo-based ICBM's, and C³ would have been difficult.

The above notwithstanding, the system's fate also was influenced by the Air Force's lack of interest in it.¹⁶ Just as other missions outside the service's essence traditionally have received little support--close air support, for example--the notion of using aircraft to transport and launch strategic missiles also was

¹⁴OTA, MX Missile Basing, 230-231.

¹⁵Ibid., 218-19.

¹⁶Edwards, Superweapon, 112.

unattractive. Moreover, the most likely version of the air-mobile concept--a fleet of wide-body aircraft on ground alert--made it even less palatable. Not only would the Air Force be required to purchase unwanted transport aircraft, those aircraft rarely would be flown. The Air Force also was concerned that the purchase of costly Peacekeeper aircraft would interfere with the procurement of those systems they favored, including the B-1 and B-2 bombers.¹⁷

The Trench Concept

In addition to the air-mobile system, the trench concept also was seriously considered early in the Peacekeeper program. And, as was the case with air mobility, several variations were proposed and examined. Some versions, for example, were hardened throughout their entire length, while others were hardened in sections.¹⁸ The basic concept, however, consisted of concealing each missile, carried by a transporter-erector-launcher or TEL, in its own 10- to 20-mile-long tunnel (see fig. 5). The TEL would move at random intervals, thereby requiring that the Soviets "attack the

¹⁷R. James Woolsey, "The Politics of Vulnerability: 1980-83," Foreign Affairs 62, no. 4 (Spring 1984): 810.

¹⁸OTA, MX Missile Basing, 99.

entire [length of each] trench to achieve a high-confidence expectation of destroying the missile."¹⁹

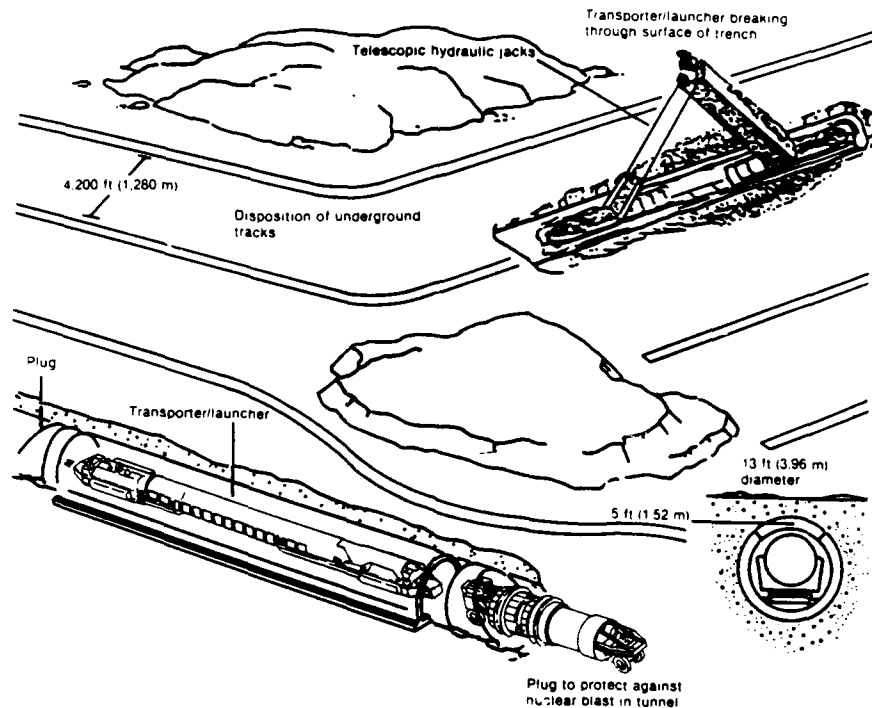


Fig. 5. The Trench Concept (OTA, MX Missile Basing, 99)

Although the Air Force favored the trench concept over air mobility and the former would have had a higher

¹⁹Alton D. Slay, "MX, a New Dimension in Strategic Deterrence," Air Force Magazine 59, no. 9 (September 1976): 47. In August 1978, a Boeing prototype erection system broke through the top of a buried concrete tunnel and erected to the required launch angle (Jeffrey M. Lenorovitz, "Blast Effects on Missile Site Studied," Aviation Week and Space Technology, 18 September 1978, 62). In November of that same year, a Martin Marietta breakout and erection system also was tested successfully ("USAF Tests MX Breakout From Trench," Aviation Week and Space Technology, 20 November 1978, 23).

price to attack than existing missile silos--Desmond Ball, for example, reported that it would take 4,000 perfectly-accurate one megaton warheads to destroy 200 Peacekeepers housed in tunnels 10-12 miles long and hardened to 600 psi²⁰--it too faced a number of drawbacks. First of all, some were concerned that an explosion in one part of a tunnel would send shock waves throughout its length, thereby "breaching the blast plug and destroying the missile beyond a range where it presumably would survive the internal airblast."²¹ Although a series of test blasts and analyses by the Defense Nuclear Agency largely dispelled this fear,²² there also was considerable doubt that the secrecy of the missile's location, otherwise known as preservation of location uncertainty (PLU), could be maintained. This problem and those that follow are shared by other basing modes employing deception, including multiple protective shelters.

Loss of PLU, as the OTA pointed out, can result from a number of physical signatures--some of which can be detected hundreds of miles away if adequate

²⁰Desmond Ball, "The MX Basing Decision," Survival 22, no. 2 (March/April 1980): 59.

²¹OTA, MX Missile Basing, 100.

²²Ibid.

countermeasures are not taken--as well as operational signatures, and internal information. The number of physical signatures that can betray a missile's location "run in the scores" and include seismic/ground tilt signatures resulting from a missile's weight, heat generated by electrical equipment, sounds made by a missile and its support equipment, optical signatures, signatures from chemicals contained in a missile's propellant and other elements of the weapon system, radioactive emissions from a missile's warheads, magnetic field anomalies from the metal in missile-launching equipment, and various electromagnetic emissions. Operational signatures are routine operations and maintenance procedures that can be monitored to determine the location of missiles, while internal information "includes piecing together many observations to arrive at any pattern of recognizable data from which one may infer missile location."²³

Although measures can be taken to counter these signatures--physical signatures, for example, can be eliminated through the system's design, shielding, masking and jamming, the use of decoys, and providing

²³Ibid., 38.

physical security near the deployment area²⁴--the feasibility of preserving a missile's location uncertainty remains largely unknown. The OTA, for example, concluded that:

it is not known at this point of technical PLU work, how feasible it will be to eliminate, attenuate, mask, simulate, or randomize all of the missile's signatures, or what the residual signatures will be. Since this is a detailed engineering task, confidence cannot be obtained until full-scale field tests have been done, when missile signatures can be more reliably identified.²⁵

Moreover, even if the system's signatures were adequately identified and countermeasures to them discovered, the threat of Soviet technological or intelligence breakthroughs would continue to exist.²⁶

In addition to doubts about the trench concept's PLU, questions also were raised about adequate arms control verification procedures for missiles moving randomly inside a closed tunnel and the system's cost. While one can certainly imagine methods to verify the number of missiles deployed in this manner--Gray, for example, suggested that verification take place "from the

²⁴Ibid.

²⁵Ibid., 39-40.

²⁶Ball, "The MX Basing Decision," 63.

factory to the deployment area"²⁷--additional missiles still could be stockpiled for rapid deployment during a crisis or to abrogate an arms control agreement.²⁸ In addition, building hundreds of trenches while ensuring the system's PLU would have been an expensive undertaking. One 1978 source put the concept's price tag at "up to \$40 billion."²⁹ Moreover, some were concerned that it would cost the U.S. more to expand a deceptive basing mode than it would for the Soviet Union to overwhelm it by adding warheads to their arsenal, thereby making the system cost-ineffective.³⁰

Silo Deployment I

In 1976, after years of examining basing modes and moving no closer to a technically-, financially-, and politically-acceptable alternative to silo basing, the Air Force proposed placing the Peacekeeper in Minuteman silos on an interim basis in order to deploy the missile

²⁷Gray, The MX ICBM, 67.

²⁸Richard L. Garwin, "Multiple Aimpoints Not the Answer," Nature 278 (15 March 1979), 205.

²⁹Kenneth H. Bacon, "Plan to Bury Missiles in Vast Tunnel System Sparks Defense Debate," Wall Street Journal, 14 March 1978, 1.

³⁰See, for example, the Defense Science Board's concerns regarding the cost-effectiveness of horizontal multiple protective shelters (Edwards, Superweapon, 149-150).

as quickly as possible. The service's suggestion, the first of several to deploy the Peacekeeper in existing silos, was supported by the Defense Department and the White House.³¹

The Congress, however, quickly rejected the Air Force's recommendation, stating that:

The rationale behind the development of a new missile system (MX) is to provide a land-based survivable strategic force. The development of an alternative basing mode as opposed to a fixed or silo-based mode is the key element in insuring this survivable force. The conferees are in agreement that providing a survivable system should be the only purpose for this effort.³²

Thus, the FY 1977 defense authorization act prohibited the expenditure of funds for basing the Peacekeeper in silos.³³

Multiple Protective Shelters

In 1977, separate studies by the Defense Science Board and the Air Force rejected the trench concept in

³¹Lauren H. Holland and Robert A. Hoover, The MX Decision: A New Direction in U.S. Weapons Procurement Policy? (Boulder, CO: Westview Press, 1985), 128-130.

³²This language, taken from the conference report on the FY 1977 defense authorization act, was quoted in Paul N. Stockton, "Arms Development and Arms Control: The Strange Case of the MX Missile," in American Politics and Public Policy: Seven Case Studies, ed. Allan P. Sindler (Washington, D.C.: CQ Press, 1982), 241.

³³Ibid.

favor of concealing the Peacekeeper force among thousands of silo-like vertical shelters (see fig. 6),³⁴ and in December of the following year, the Defense Systems Acquisition Review Council, a forerunner of the Defense Acquisition Board, recommended the latter for full-scale development.³⁵ As was the case with air mobility and the trench concept, the logic behind multiple protective shelters (MPS) was to make the system's price to attack unaffordable to Soviet decisionmakers.

Although vertical MPS had a number of advantages over the trench concept--vertical shelters, for example, can be constructed to withstand greater blast overpressure than horizontal structures³⁶--this particular variant of MPS basing was short lived. In addition to those concerns common to all deceptive basing modes, moving a compromised missile from one vertical shelter to another would have been a time-consuming task. The missile transporter would have had to stop at every shelter that could house a particular missile to protect the new location's secrecy. Estimates of how long this

³⁴Edwards, Superweapon, 149-152.

³⁵Strategic Air Command, Office of the Historian, SAC Missile Chronology: 1939-1988 (Offutt AFB, NE: Strategic Air Command, 1 May 1990), 67.

³⁶OTA, MX Missile Basing, 92-93.

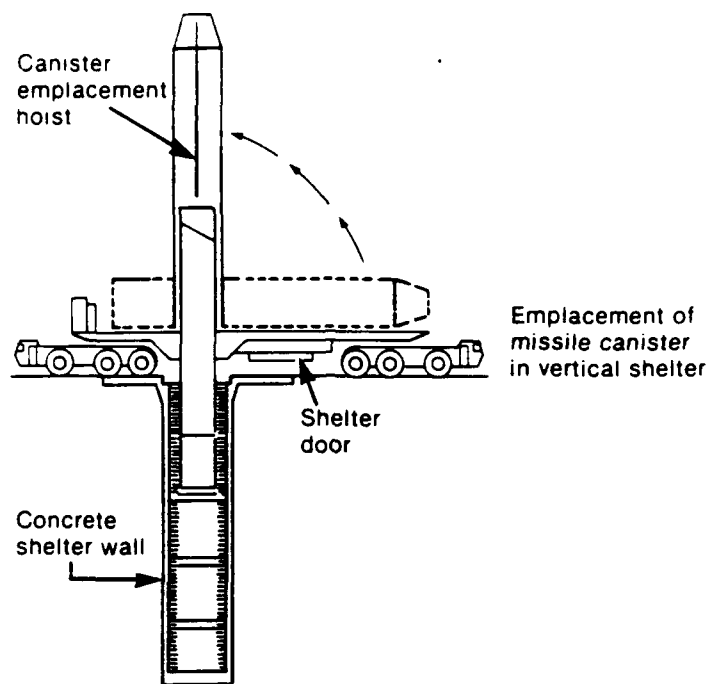


Fig. 6. Vertical MPS Basing (OTA, MX Missile Basing, 94)

procedure would take ranged from 15 to 48 hours.³⁷ The trench concept's TEL, in contrast, could have relocated on warning of an attack or moved continuously if necessary. Some also were concerned that the SALT II protocol would have had to have been renegotiated if the Soviets insisted that vertical shelters be treated like

³⁷On the low end, see Ibid., 94. The higher estimate can be found in "Air Force Reverses Position, Backs Horizontal MX Basing," Aviation Week and Space Technology, 10 March 1980, 21. Other estimates fall somewhere in between. See, for example, Holland and Hoover, The MX Decision, 142.

silos.³⁸ Given difficulties such as these, vertical MPS soon gave way to a horizontal version of the concept. President Carter approved horizontal MPS for full-scale development in September 1979.³⁹

First suggested by Albert Latter in 1966 as "garage mobility"--putting Minuteman missiles on trucks and moving them among a number of horizontal shelters or "garages"⁴⁰--the horizontal MPS system would have consisted of 200 Peacekeeper missiles deployed among 4,600 shelters located in the Great Basin region of Nevada and Utah. The shelters, hardened to about 600 psi, would have been divided into 200 separate clusters each containing 23 shelters. Each cluster, in turn, would have contained a single missile, transporter, and maintenance facility, along with 23 arch-shaped missile simulators.⁴¹ The shelters within a cluster would have been arranged in a linear grid pattern with each shelter separated from the others by at least one mile (see fig.

³⁸Clarence A. Robinson, Jr., "MX Basing Delay Threatens SALT Ratification," Aviation Week and Space Technology, 20 November 1978, 20. Also see Holland and Hoover, The MX Decision, 142.

³⁹SAC, Missile Chronology, 68.

⁴⁰Edwards, Superweapon, 54.

⁴¹OTA, MX Missile Basing, 45-46.

7).⁴² The clusters, and the shelters within them, would have been connected by over 8,000 miles of road--"more than the distance from Maine to California and back."⁴³

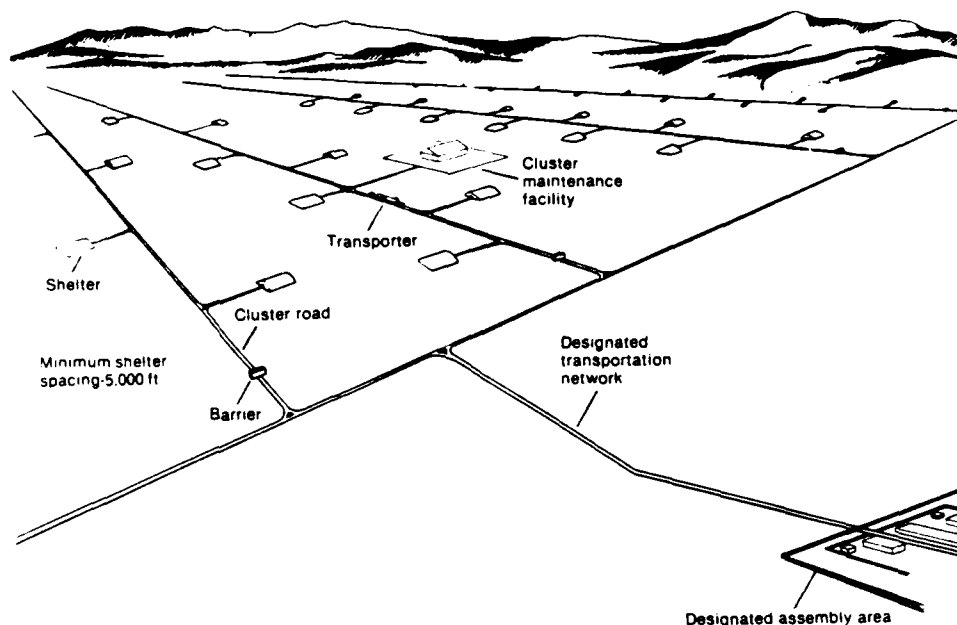


Fig. 7. Horizontal MPS Basing (OTA, MX Missile Basing, 46)

Each missile would have been housed in one of 23 shelters, while those shelters without a missile would have contained a simulator constructed so that "when it occupies a shelter, or when it is carried by the

⁴²Ibid., 33. Originally, the shelters were to have been arranged in a "racetrack" configuration--23 shelters along a large loop road (Herbert Scoville, Jr., MX: Prescription for Disaster [Cambridge: MIT Press, 1981], 23-25).

⁴³Ibid., 22.

transporter, it could not be distinguished from the missile by an outside observer."⁴⁴ During the transfer of a missile from one shelter to another or to the maintenance facility, PLU would have been maintained by the transporter stopping at each of the 23 shelters and picking up either the missile or a simulator and leaving either the missile or another simulator in its place.⁴⁵ To facilitate this process, the transporter--a vehicle about 200 feet long, 31 feet high, and weighing 1.1 million pounds unloaded--would have been capable of holding either two simulators or a simulator and a missile during the missile-transfer procedure (see fig. 8).⁴⁶ The entire process was expected to take between 9 and 12 hours.⁴⁷

Although periodically moving the missiles among the shelters would have protected against a breakdown of PLU through long-term data-gathering efforts, it would not have protected against the Soviets quickly determining the missiles' locations and attacking them before they could be relocated. To guard against this threat, an

⁴⁴OTA, MX Missile Basing, 50.

⁴⁵Ibid., 57.

⁴⁶Ibid., 49.

⁴⁷Ibid., 57.

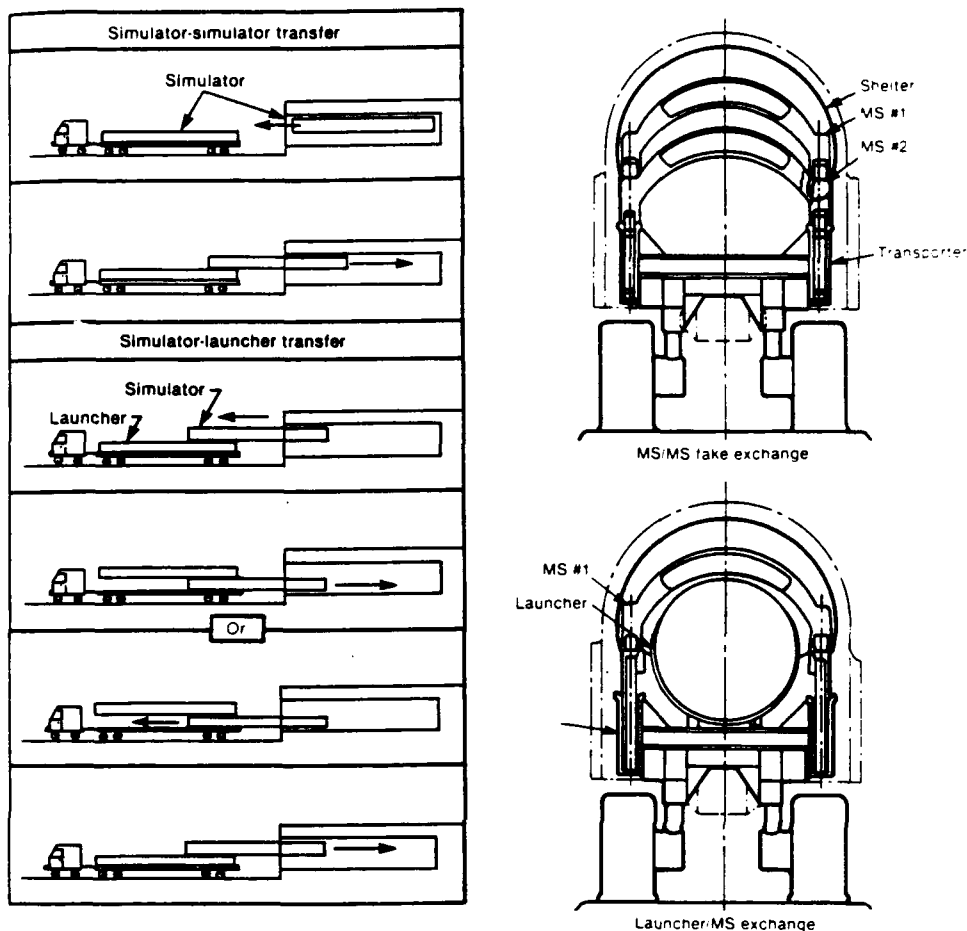


Fig. 8. Missile-Transfer Procedure (OTA, MX Missile Basing, 51).

option existed for basing a small percentage of the missile force on transporters outside of the shelters. Those missiles would have dashed to the nearest shelter on warning of an attack.⁴⁸ It was estimated that it would have taken less than six minutes for a transporter to dash to a shelter, unload its missile, and move away

⁴⁸Scoville, MX: Prescription for Disaster, 22.

so that the missile could be launched. The launch sequence--including the missile emerging from its shelter, erecting to its launch position, and firing (see Fig. 9)--would have taken several additional minutes.⁴⁹

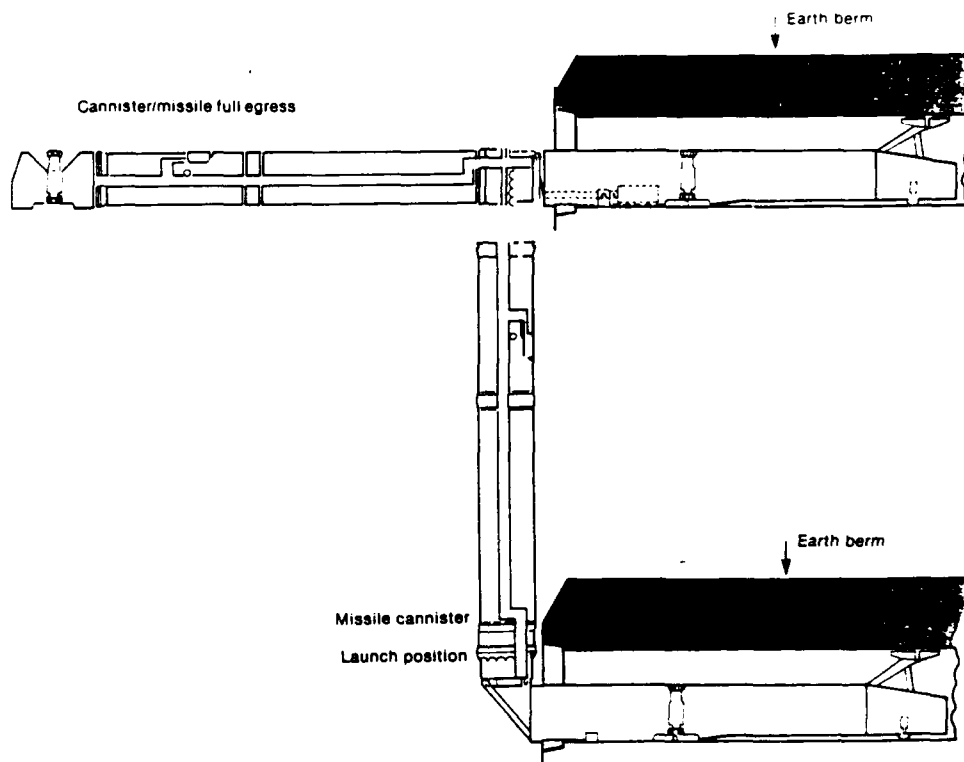


Fig. 9. MPS Launch Sequence (OTA, MX Missile Basing, 56)

Arms control verification for the horizontal MPS system would have been a multistage process. First, "slow, open, and observable" procedures in the assembly area would have allowed the Soviets to count the number of missiles and launchers assembled there for delivery to

⁴⁹OTA, MX Missile Basing, 55-57.

the clusters. Second, movement of the missiles and launchers to the clusters would have been limited to a single paved road and performed by special transporters. Third, each cluster would have been closed to preclude a missile from one cluster being moved to another.⁵⁰ Finally, the shelters, transporters, and simulators would have been constructed with viewing ports. The viewing ports in the shelters and transporters would have allowed Soviet satellites to look inside them, while the simulator's viewing ports would have aligned with those in the shelter and transporter. This alignment, plus the simulator's arched shape, would have made those shelters and transporters without missiles appear empty to satellites viewing them from space (see fig. 10).⁵¹

Besides those problems common to all deceptive basing modes, the horizontal MPS system's chief drawbacks were its cost and potential effect on the region where it would have been deployed. In September 1979, the Carter administration estimated the system's cost at \$33.2 billion in 1978 dollars for 200 missiles, 4,600 shelters, and operation and maintenance of the system until 1999. In June of the following year, however, the General

⁵⁰Ibid., 55-56.

⁵¹Ibid., 48-50.

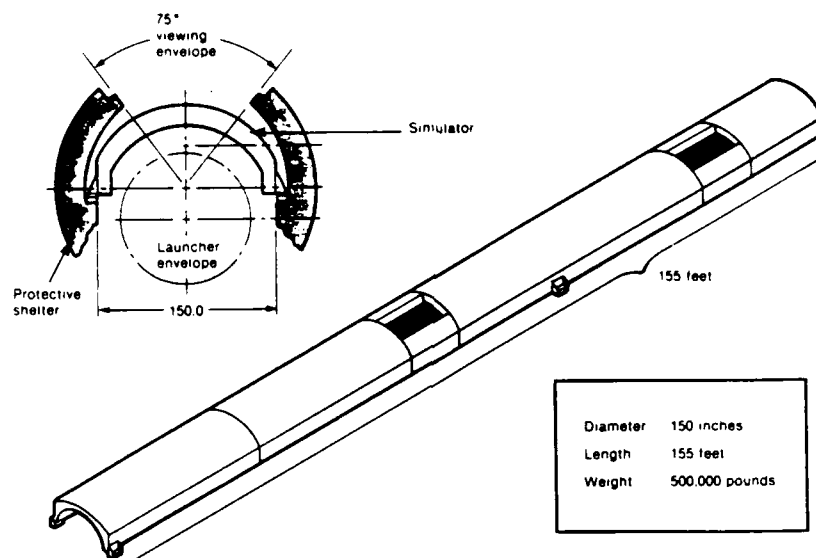


Fig. 10. MPS Missile Simulator (OTA, MX Missile Basing, 52)

Accounting Office put the system's life-cycle cost at \$71.8 billion.⁵² Moreover, horizontal MPS--"the largest construction project in history"⁵³--met with considerable resistance from an "unusual coalition of western landowners, environmentalists, arms control advocates, promilitary conservatives, and religious leaders."⁵⁴ As Holland and Hoover noted, the coalition's "overriding concern . . . was the clear threat that the weapon system

⁵²Scoville, MX: Prescription for Disaster, 161-163. OTA estimated the system's life-cycle cost to be \$43.5 billion in FY 1980 dollars (OTA, MX Missile Basing, 94-97).

⁵³Scoville, MX: Prescription for Disaster, 169.

⁵⁴Holland and Hoover, The MX Decision, 98.

posed to a particular way of life."⁵⁵ Ranchers were concerned with the loss of valuable grazing land, Mormons with the prospect of being outnumbered by nonbelievers, environmentalists with the effect construction would have on the area's delicate ecosystem, sportsmen with the withdrawal of land from their use, and Indians with violations of their sacred lands.⁵⁶ Separately and in various combinations, these groups used a myriad of federal, state, and local laws to delay and eventually help defeat the MPS system.⁵⁷

Silo Deployment II

The aforementioned concerns, coupled with his political debt to the Western states, his personal friendship with Senator Laxalt of Nevada, and his desire to put as much distance as possible between his defense policies and those of his predecessor, led President

⁵⁵It was estimated that 100,000 people would have moved into the Great Basin region of Nevada and Utah at the peak of construction, bringing with them an assortment of social problems, a need for increased services and infrastructure, and inflation. Once construction was completed, there was the possibility of ghost towns where the construction workers and their families had once lived (Ibid., 107).

⁵⁶Ibid., 99.

⁵⁷See, for example, Ibid., Chapter 5 and Lauren Holland, "The Uses of NEPA in Defense Policy Politics: Public and State Involvement in the MX Missile Project," Social Science Journal 21, no. 3 (July 1984): 53-71.

Reagan to conclude that an MPS system "would be just as vulnerable as the existing missile silos."⁵⁸ Thus, the system was canceled in October 1981.⁵⁹ To avoid delaying Peacekeeper's deployment and the public-interface problems encountered with MPS basing, the new administration announced its intention to deploy 100 Peacekeepers in superhardened silos as an interim measure until a permanent home could be found for the missile.⁶⁰

The Reagan administration's revival of the 1976 basing recommendation, however, met with a similar fate. The Congress again rejected silo basing for the Peacekeeper and prohibited the administration from spending more than five percent of the weapon system's research and development funds on superhardened silos. It also directed that the administration find a permanent basing mode for the Peacekeeper by 1 July 1983.⁶¹ The administration responded with closely-spaced basing, a concept more popularly known as "dense pack."

⁵⁸Quoted in Edwards, Superweapon, 216. Lou Cannon argues that this decision was purely political and made very casually by a president who really didn't understand the issue. See Lou Cannon, President Reagan: The Role of a Lifetime (New York: Simon & Schuster, 1991), 163-171.

⁵⁹SAC, Missile Chronology, 70.

⁶⁰Holland and Hoover, The MX Decision, 180.

⁶¹James M. Lindsay, Congress and Nuclear Weapons (Baltimore: Johns Hopkins University Press, 1991), 65.

Closely-Spaced Basing

Closely-spaced basing reportedly was first proposed in the 1970s by a young Air Force captain conducting research on the effects of fratricide but was quickly dismissed because of uncertainties concerning its technical feasibility. The concept, however, was revived early in the Reagan administration, and by 1982 it had the approval of a wide range of actors, including the Secretary of Defense, the National Security Advisor, and the President's Science Advisor.⁶² Significantly, the Joint Chiefs of Staff (JCS) were divided on the basing mode, with only the Air Force Chief of Staff supporting it.⁶³

Based upon the theory that one nuclear explosion would affect the accuracy and reliability of those warheads arriving afterwards, closely-spaced basing called for placing 100 Peacekeepers in 100 superhardened silos located just 1,500 to 2,000 feet apart.⁶⁴ In this

⁶²Holland and Hoover, The MX Decision, 221-222. Fratricide effects include radiation, blast, fireball, turbulence, dust, and debris.

⁶³Ibid., 227.

⁶⁴Pat Towell, "'Dense Pack' Scheme for MX Faces First Congressional Test," Congressional Quarterly Weekly Report, 17 July 1982, 1703. The silos would have been hardened to withstand about 10,000 psi of blast overpressure.

configuration, the entire Peacekeeper force could have been deployed across just 10 to 15 square miles of land and would have needed just 100 miles of road,⁶⁵ thereby reducing the weapon system's cost and minimizing its impact on the surrounding area. The Pentagon estimated the system's cost at \$23.6 billion in FY 1982 dollars.⁶⁶ On 22 November 1982, President Reagan recommended deploying the Peacekeeper in closely-spaced silos near F.E. Warren AFB.⁶⁷

The basing mode, however, was quickly challenged by those skeptical of its claims, including key members of the Congress. They questioned, for example, the technical feasibility of a system that would rely upon the inadequately-tested effects of fratricide for its survival. They wondered whether burrowing and/or highly-accurate, low-yield warheads could sidestep the effects of fratricide and destroy the Peacekeeper force.⁶⁸ They also were concerned that the Soviet Union might be able to limit the United States' ability to retaliate through a process called "pin down"--the use of high-altitude

⁶⁵Holland and Hoover, The MX Decision, 225.

⁶⁶Towell, "Dense Pack," 1704.

⁶⁷SAC, Missile Chronology, 71.

⁶⁸Holland and Hoover, The MX Decision, 80-81.

nuclear explosions over missile fields. "The point of these 'pindown' blasts," one analyst observed, "would not be to destroy any of the Dense Pack launchers but to create a zone of blast and radiation through which the MXs could not safely be launched."⁶⁹ Finally, there was some question whether closely-spaced basing would violate the SALT II Treaty's ban on new fixed launchers or if the missiles, because they would be housed in movable canisters, could be categorized as mobile missiles and the silos as shelters.⁷⁰

In light of the above, the Congress eliminated all funding for the procurement of Peacekeeper missiles from the defense budget, prohibited flight testing of the missile, and withheld funds for the missile's basing mode until it was approved by the Congress.⁷¹

Silo Deployment III

In January 1983, President Reagan responded to the Congress' actions by impanelling the Scowcroft Commission to study, yet again, the Peacekeeper basing issue with special attention to the political viability of their recommendations. After just three months and a

⁶⁹Towell, "Dense Pack," 1704.

⁷⁰Ibid.

⁷¹Lindsay, Congress and Nuclear Weapons, 66.

considerable degree of consultation with key members of the Congress, the commission recommended a three-part compromise that sought to bridge the gap between the Peacekeeper's supporters and those who favored a greater emphasis on arms control and deMIRVing the ICBM force. On the one hand, they recommended deploying 100 Peacekeepers in existing Minuteman silos to increase the United States' counterforce capability, strengthen its position in arms control negotiations, and demonstrate the nation's resolve to modernize its land-based missiles. On the other hand, the development of a mobile, single-warhead ICBM coupled with an increased emphasis on arms control was designed to end the stalemate over ICBM modernization while channeling future modernization efforts in a more stabilizing direction.⁷²

Although the Scowcroft Commission's compromise led to the Peacekeeper's deployment, the number of Peacekeepers that could be deployed in Minuteman silos was limited to 50 in 1985, thus sending the Air Force and the Reagan administration in search of a more survivable basing mode for the second-50 missiles and beginning a new chapter in the Peacekeeper story. On 19 December 1986, the Reagan administration announced that rail

⁷²Woolsey, "The Politics of Vulnerability," 815-816.

garrison, a descendant of rail-mobile basing, would be that basing mode.

Rail-Mobile Minuteman

For mobile Minuteman is being born out of an unusual marriage of the railroad train, an elderly, respectable form of transport, and the newest and youngest offspring of the intercontinental ballistic missile family which is still in its infancy and has only recently begun to achieve military respectability.

Robert Hotz, Aviation Week

Even before the first U.S. ICBM went on alert, some analysts were warning of the eventual vulnerability of silo-based missiles as Soviet warheads became more numerous, powerful, and accurate. And for many, mobility appeared to be the logical next step in the evolutionary improvement of ICBM survivability. "Today," wrote one observer in 1959, "the trend appears to be from soft to hard to harder to hardest to mobility and dispersion."⁷³

⁷³Warren R. Stumpe, "Launching: Where ICBMs Are Weak," Missiles and Rockets, 26 October 1959, 21. The earliest U.S. ICBMs were not hardened at all; they were simply stored horizontally and erected to launch. These missiles soon were replaced with those housed in horizontal "coffin" shelters, thereby providing some hardening against nuclear effects. Later, U.S. ICBMs were deployed in vertical silos, although the earliest versions required that the missile and its gantry rise to the earth's surface prior to launch. It was not until the Minuteman I and Titan II missiles were deployed that ICBMs were launched from hardened underground silos.

It was with this eventuality in mind that the Air Force--at Air Force Chief of Staff Gen. Thomas D. White's urging and with the support of Gen. Thomas Powers, Commander in Chief of the Strategic Air Command (CINCSAC)--began examining mobile basing modes for the Minuteman ICBM, including rail mobility, road mobility, and barge-mounted sea launchers.⁷⁴ Of these basing modes, rail and road mobility received the most attention,⁷⁵ although the latter eventually was dismissed because of the cost and technical obstacles associated with developing a road-mobile launcher capable of carrying ICBMs.⁷⁶

In October 1958, in what may have been the first feasibility study of rail-mobile basing, representatives from the Air Force's Ballistic Missile Division (a forerunner of the Ballistic Missile Office) and SAC examined a number of operational concepts, ranging from continuously-mobile trains that would launch their

⁷⁴Roy Neal, Ace in the Hole: The Story of the Minuteman Missile (Garden City, NJ: Doubleday & Co., 1962), 140 and Richard Witkin, "Air Force Speeds Rail-Car Missile," New York Times, 15 November 1959, 29.

⁷⁵For example, articles like "Mobility Designed into Minuteman," Aviation Week, 5 August 1959, 93-101 and "First Details of Minuteman Configuration," Aviation Week, 14 September 1959, 33-34 discussed only the rail- and road-mobile options for Minuteman.

⁷⁶Stumpe, "Launching," 22.

missiles while moving to trains that would move periodically and launch their missiles from presurveyed bench marks on railroad sidings and spurs.⁷⁷ Of those concepts, the most likely called for the trains to be moving just 20 percent of the time, thereby allowing the missiles to be launched promptly when the trains were stationary. If a train was in motion when the order to launch was received, it would have had to travel to one of the bench marks located about every 10 miles along the tracks, where its missiles would have been prepared for launch and fired. It was estimated that this procedure could have taken as long as 43 minutes if the train was midway between bench marks when notified. Almost half of that time was required to stabilize the missile's guidance system.⁷⁸

The train itself would have consisted of about 13 railroad cars--including a locomotive, a launch control/command car, and three missile cars--manned by a 22-member crew composed of both military and civilian

⁷⁷U.S. Air Force, Minuteman Mobility Concept, October 1958. This document, originally classified secret, was declassified on 14 April 1975.

⁷⁸Ibid., 46.

personnel.⁷⁹ Most of the train's cars would have been slightly-modified versions of standard rolling stock. The missile and launch control cars, however, required more significant modification.⁸⁰

On 15 May 1959, the Air Force revised its Minuteman development plan and called for part of that force to be based in the rail-mobile mode.⁸¹ Although estimates of the rail-mobile force's eventual size varied,⁸² feasibility tests of the concept, codenamed Operation Big Star, soon were conducted over the nation's railways in

⁷⁹Ibid., 16-19. Similar descriptions appear in DOD, ICBM Basing Options, 55 and William S. Reed, "Minuteman Train Mockup Gains Approval," Aviation Week, 19 December 1960, 30-31.

⁸⁰See, for example, the descriptions offered in Neal, Ace in the Hole, 140-141 and Reed, "Train Mockup," 30.

⁸¹SAC, Missile Chronology, 22.

⁸²Lt. Gen. Bernard A. Schriever, then commander of the Air Research and Development Command, for example, was quoted as saying that "more than 100" rail-mobile launchers would be deployed (Reed, "Train Mockup," 30), while the New York Times reported that one-fifth to one-third of the Minuteman force would be deployed on rails (Witkin, "Rail-Car Missile, 29). A SAC history, however, put the number at 50 to 150 rail-mobile ICBMs (Strategic Air Command, Office of the Historian, From Snark to Peacekeeper: A Pictorial History of Strategic Air Command Missiles [Offutt AFB, NE: Strategic Air Command, 1 May 1990], 29). The Air Force's 1958 mobility study assumed that 25 percent of the Minuteman force would be mobile (USAF, Minuteman Mobility Concept, 10).

the far west, northwest, and midwest.⁸³ As one account put it:

By the summer of 1960, four experimental trips with a mock-up train that carried no missiles demonstrated the compatibility of the missile train with civilian rail operations. They checked the train's equipment and proposed signal systems that allowed it great freedom of movement. They also proved that the shock-proofing should work as planned, to protect the missiles when the time came.⁸⁴

By the year's end, Air Force Secretary Dudley Sharpe approved "an initial program consisting of 30 missile trains with three Minuteman missiles per train,"⁸⁵ and SAC activated a mobile-Minuteman missile unit, the 4602nd Strategic Wing, at Hill AFB, Utah.⁸⁶ Agreements even were reached with labor unions to ensure that the trains would operate uninterrupted during labor disputes.⁸⁷

Despite this early optimism, rail mobility was

⁸³"SAC Shapes Missile Force," Aviation Week, 20 June 1960, 109. Also see SAC, Missile Chronology, 26-27.

⁸⁴Neal, Ace in the Hole, 142. Also see SAC, From Snark to Peacekeeper, 29.

⁸⁵Robert A. Zirkle, "Rail-Garrison MX...No Way to Run a Railroad," Arms Control Today 17, no. 8 (October 1987): 17.

⁸⁶SAC, Missile Chronology, 28.

⁸⁷Neal, Ace in the Hole, 141, and Reed, "Train Mockup," 31. For one account of how labor unrest affected the U.S. strategic-missile program, see "How Strikes Delay the Missile Program," U.S. News and World Report, 1 August 1960, 65-66.

considered inferior to silo basing in several important respects. First, and foremost from an operational point of view, rail-mobile Minuteman would have been less accurate and reliable than its silo-based counterpart. Guidance problems included difficulties associated with aligning the missile to its target azimuth, determining the missile's initial position along the railroad tracks, and target and trajectory computation.⁸⁸ In addition, there were concerns that vibration and shock would reduce the reliability and service life of the missile's guidance equipment.⁸⁹

In addition to the technical difficulties associated with rail mobility, there also were concerns about the basing mode's cost and prelaunch survivability. The Air Force's 1958 feasibility study estimated that the acquisition and operations costs for rail-mobile Minuteman would have been almost twice that of its silo-based counterpart.⁹⁰ Much of this cost differential was attributable to manpower requirements--about 5,800

⁸⁸USAF, Minuteman Mobility Concept, 36-43.

⁸⁹Ibid., 44.

⁹⁰Ibid., 85. A 1960 estimate reached a similar conclusion. See Desmond Ball, Politics and Force Levels: The Strategic Missile Program of the Kennedy Administration (Berkeley: University of California Press, 1980), 123.

personnel for a force of 300 mobile missiles versus 1,931 for a silo-based force of the same size.⁹¹ Concerning the system's prelaunch survivability, the 1958 study concluded that "for predicted values of reliability, intelligence cycle, enemy yield and CEP and . . . size of enemy attack, survivability of a 50-100 psi [silo-based] system is better than for a mobile system."⁹² The study also noted, however, that the opposite would be the case as Soviet CEPs decreased below one nautical mile.⁹³

Finally, there were concerns about rail mobility's contact with the public. Secretary of Defense McNamara, for one, was opposed to any basing mode that might make the U.S. appear to be a "garrison state."⁹⁴ However, as Blair Stewart pointed out in his comparison of the rail-mobile Minuteman and Peacekeeper rail garrison programs,

⁹¹USAF, Minuteman Mobility Concept, 76-77.

⁹²Ibid., 119.

⁹³Ibid. Of course, Minuteman silos are much harder than the 50-100 psi assumed in the Air Force's 1958 study. Most estimates place their strength at about 2,000 psi. Likewise, Soviet warheads are much more accurate today than during the late-1950s. The SS-18 mod 4, for example, is estimated to have a CEP of about 250 meters. The rail-mobile SS-24 and the road-mobile SS-25 ICBMs are even more accurate, with CEPs of around 200 meters (The International Institute for Strategic Studies, The Military Balance: 1990-1991 [London: International Institute for Strategic Studies, 1990], 221).

⁹⁴Ball, Politics and Force Levels, 123.

public interface was less of an issue then than today. Noting that the Air Force's 1958 feasibility study didn't even mention the issue, Stewart concluded that:

This is a logical reflection of the times and the relative non-existence of environmental protection and interest groups that could seek legal means to block the Federal Government from a project, particularly if it were for national security reasons. Second, various pieces of legislation such as the National Environmental Policy Act, the Engle Act, and the Federal Land Policy and Management Act, which today have become the basis (whether intended by Congress or not) for exhaustive and expensive Environmental Impact Statements, siting surveys, and public hearings and meetings were not on the books at the time.⁹⁵

Upon assuming office, President Kennedy ordered a complete review of the nation's "defense strategy, capacity, commitments, and needs in the light of present and future dangers."⁹⁶ Although this review determined that "an absolute deterrent must rest on weapons which come from hidden, moving, or invulnerable bases which will not be wiped out by a surprise attack," it also concluded that deploying Minuteman in silos would provide "a high degree of survivability." Given the problems

⁹⁵Blair Stewart, Comparing Rail Mobile Minuteman and Peacekeeper Rail Garrison (Reston, VA: Center for National Program Evaluation, September 1989), 11.

⁹⁶Congress, House, The Defense Budget--Message from the President of the United States, 87th Cong., 1st sess., Congressional Record (28 March 1961), vol. 107, pt. 4, 5017.

associated with rail-mobile basing and the ability of silo-based missiles to meet the projected near- and mid-term Soviet threat, the three rail-mobile Minuteman squadrons requested in the Eisenhower administration's final defense budget were deferred in favor of three additional silo-based squadrons.⁹⁷ On 13 December 1961, after spending \$108 million on research and development, the rail-mobile Minuteman program was canceled.⁹⁸

Rail Mobility in the Interim Years

A review of the academic literature and government studies regarding ICBM modernization and Peacekeeper basing indicates that rail mobility was rarely discussed between rail-mobile Minuteman's cancellation in 1961 and the Congress' 1985 cap on the deployment of Peacekeepers in existing Minuteman silos. Moreover, when rail mobility was mentioned, it was quickly dismissed as a viable alternative. As one interviewee put it, "when rail mobility was considered at all, it was in order to have an option to eliminate."⁹⁹ The examples that follow

⁹⁷Ibid., 5019.

⁹⁸Neal, Ace in the Hole, 168 and Jack Raymond, "Plan for Missile on Rails Killed In Favor of Underground Sites," New York Times, 14 December, 1961, 20.

⁹⁹Thomas Maxwell, telephone interview by author, 2 May 1991, Written notes, Aerojet ASRM Division, Iuka, MS. Maxwell was the Air Force's Program Element Monitor (PEM)

illustrate the basing mode's status during this almost 25-year period. Also included is a brief discussion of two failed attempts to promote rail-mobile basing for the Peacekeeper.

Among the academic literature addressing ICBM modernization, two examples stand out: The Future of Land Based Missile Forces and Missiles for the Nineties. In the former, Colin Gray addressed what he termed "the question of the decade"--that is, "what is to be done about fixed-site, land-based missile forces."¹⁰⁰ Although Gray offered several possible solutions and examined a number of basing modes--including the trench concept, multiple protective shelters, and air-mobile basing--he dismissed rail mobility as an option for which "a convincing case . . . has yet to be advanced."¹⁰¹

Missiles for the Nineties, written by analysts from the National Institute for Public Policy, also devoted several chapters to alternative basing modes for the

for Peacekeeper rail garrison through 1989. As the PEM, Maxwell was responsible for overseeing the weapon system's progress and acting as a point of contact between the Air Staff and other agencies with an interest in the program.

¹⁰⁰Colin Gray, The Future of Land Based Missile Forces (London: International Institute for Strategic Studies, 1977), 1.

¹⁰¹Ibid., 22.

Peacekeeper, including deep-underground basing, superhard silos, and ballistic-missile defense.¹⁰² Rail mobility, however, was not one of them. Likewise, previous studies of the Peacekeeper program failed to mention any serious consideration of rail-mobile basing for the missile.¹⁰³

In addition to academic works like those discussed above, missile basing studies conducted by and for the U.S. government during this period also either considered rail mobility in a cursory manner or ignored it altogether. ICBM Basing Options and MX Missile Basing are two prominent examples of the former, while the Townes Commission, the Defense Department's 1983 technical assessment of strategic forces, and the Scowcroft Commission are representative of the latter.

Admittedly, the purpose of the Defense Department's ICBM Basing Options was to "make available to the general public an unclassified summary of the rationale and system evaluation considerations that led the U.S. to decide to deploy the M-X intercontinental ballistic

¹⁰²Barry R. Schneider, Colin S. Gray, and Keith B. Payne, eds., Missiles for the Nineties: ICBMs and Strategic Policy (Boulder, CO: Westview Press, 1984), chapters 3, 4, and 5, respectively.

¹⁰³See Edwards, Superweapon; Gray, The MX ICBM; Holland and Hoover, The MX Decision; Robert A. Hoover, The MX Controversy: A Guide to Issues and References (Claremont, CA: Regina Books, 1982); and Scoville, MX: Prescription for Disaster.

missile (ICBM) in a multiple protective shelter (MPS) basing mode."¹⁰⁴ To that end, 30 basing modes were evaluated according to a number of survivability and operational-feasibility criteria. Although the report discussed rail mobility, it strongly warned of the significant public-interface and security problems associated with the basing mode. As the Defense Department put it:

Public safety and safety of the missiles pose insurmountable problems. . . . Simultaneous operation of commercial and nuclear missile trains within or near populated areas poses an unacceptable hazard to the civilian population.¹⁰⁵

In addition:

The use of railroad train crews and dispatching personnel for movement and schedule coordination of trains, together with a unique and recognizable train configuration, makes it virtually impossible to conceal train locations from enemy agents. The mobile units would likewise be susceptible to sabotage or paramilitary attack.¹⁰⁶

The OTA's MX Missile Basing reached a similar set of conclusions.¹⁰⁷ Employing criteria comparable to those used in ICBM Basing Options, the OTA sought to "identify

¹⁰⁴DOD, ICBM Basing Options, i.

¹⁰⁵Ibid., 55.

¹⁰⁶Ibid.

¹⁰⁷See OTA, MX Missile Basing, 264-265.

MX basing modes and to assess the major advantages, disadvantages, risks, and uncertainties of each." Although five basing options were found to "appear feasible and offer reasonable prospects of providing survivability and meeting established performance criteria for ICBMs," rail mobility again was not among them.¹⁰⁸ In fact, only one-half page of the study's 335 pages was devoted to a discussion of rail-mobile basing.¹⁰⁹

Unlike the aforementioned studies, the Townes Commission, the Defense Department's technical assessment review, and the Scowcroft Commission didn't mention rail-mobile basing at all. The Townes Commission, created by President Reagan to recommend a new basing mode for the Peacekeeper following his cancellation of the MPS system, was unable to agree on a near-term solution. Instead, it suggested further research in the areas of ballistic-missile defense, air mobility using aircraft designed to remain aloft for extended periods of time, and deep-underground basing.¹¹⁰ The Defense Department's Strategic Forces Technical Assessment Review, an

¹⁰⁸Ibid., 4-6.

¹⁰⁹Ibid., 264-265.

¹¹⁰Edwards, Superweapon, 231-233.

unpublished report requested by the Congress in December 1982, assessed a number of basing modes according to a variety of strategic-capability, system-feasibility, and arms control and foreign policy criteria and declared closely-spaced basing--the administration's preference at the time--the most attractive alternative. Finally, in addition to recommending that 100 Peacekeepers be "deployed promptly in existing Minuteman silos,"¹¹¹ the Scowcroft Commission also suggested several alternative basing options for the Peacekeeper: multiple protective shelters, closely-spaced basing, and closely-spaced basing with deception.¹¹² Other basing modes, according to the commission, were not considered because of the Peacekeeper's size and the length of time required to develop the technology necessary for deployment.¹¹³ Although neither the missile's size nor the need to develop new technologies would have precluded deploying the Peacekeeper on railroad cars in the near future, rail mobility was not mentioned in the Scowcroft Commission's report.

¹¹¹The President's Commission on Strategic Forces, Report of the President's Commission on Strategic Forces (Washington, D.C.: GPO, April 1983), 21.

¹¹²Ibid., 18-19.

¹¹³Ibid., 19.

Although rail mobility was not considered a viable basing option by most defense analysts and government officials between 1961 and 1985, a few individuals and organizations attempted to generate support for the concept. In 1981, for example, President Reagan's cancellation of the MPS system led the U.S. railroad industry to wage a "quiet but persistent campaign" to persuade the Air Force to deploy the Peacekeeper on trains.¹¹⁴ Led by the Association of American Railroads and individual companies like Illinois Central Gulf, the railroads argued that rail-mobile basing would be less expensive than the other options then under consideration. As one industry official was quoted as saying:

The capital investment would be practically nothing compared to the costs of building thousands of missile shelters or burying the MX deep underground or building airplanes to fly it around. The rails are in place and cars could very easily be converted.¹¹⁵

In addition, with 180,000 miles of railroad track on which to disperse, rail-mobile Peacekeeper would have

¹¹⁴Bruce Ingersoll, "ICG Offers Trial Run Here: Deploy MX Missiles by Train, U.S. Urged," Chicago Sun-Times, 6 December 1981. Printed in Congress, Senate, Rail Basing Mode for the MX Missile, 97th Cong., 1st sess., Congressional Record, (11 December 1981), vol. 127, pt. 23, 3091-3092.

¹¹⁵Ibid.

been virtually immune to destruction by barrage attack.¹¹⁶

The Air Force, however, responded to the railroads' proposal with the usual litany of arguments against rail mobility. For example, Col. John Politi, Deputy Special Assistant for the Peacekeeper ICBM, claimed that rail-mobile Peacekeeper would be "vulnerable to sabotage and terrorist attack. It can be tracked by enemy agents too easily." He also mentioned the system's high degree of public interface, stating that "with nuclear weapons a lot of contact with the public is simply unacceptable."¹¹⁷

The railroads countered the Air Force's objections by arguing that the use of decoys and camouflaging the trains to look like ordinary rail traffic would improve the system's security, while avoiding metropolitan areas would minimize its public interface. They even hinted at garrisoning the rail-mobile force much of the time and identified a number of secure facilities where the trains could be parked and their missiles placed on alert.¹¹⁸

Despite the railroads' arguments--many of which

¹¹⁶Ibid.

¹¹⁷Quoted in Ibid.

¹¹⁸Ibid.

later were used in support of rail-garrison basing--and the patronage of Sen. Alan Dixon--a Democrat from Illinois, the home of Illinois Central Gulf--rail mobility remained an option in which the Air Force was uninterested.¹¹⁹ Col. Darrell Marshall, first as a member of the Air Staff and later as a retired Air Force officer and defense analyst, encountered a similar lack of interest in his "composite-MX" concept--a hybrid horizontal MPS/rail-mobile system cited by those who recall it as rail garrison's immediate predecessor.¹²⁰

As chief of the Air Staff's missile division, Marshall noted that while almost complete prelaunch survivability was expected of the ICBM force, few people were overly concerned that 70 percent of the strategic bomber force and half of the ballistic-missile submarine fleet would be destroyed in a bolt-from-the-blue attack. If more bombers and submarines were to survive, they would have to be generated to alert status. This observation led Marshall to ask himself why Peacekeeper's survivability, like that of the triad's other legs, could

¹¹⁹Ibid.

¹²⁰The discussion that follows is taken from Darrell C. Marshall, interview by author, 10 June 1991, Written notes, BDM International, Arlington, VA and Darrell C. Marshall, "MX--An Effective and Enduring Basing Mode," unpublished paper, 21 May 1983.

not increase as did the threat of nuclear war. The result was composite basing.

Just as the bomber force operated in three phases--ground alert, dispersal, and positive control launch--so would the composite Peacekeeper. Day to day, 100 Peacekeepers would have been concealed among 400 hardened horizontal shelters at four military installations. Each installation would have had 25 missiles and each missile would have been assigned four shelters, with each shelter separated from the others by about one mile. Deployed on road-mobile launchers, the missiles would have been capable of moving from one assigned shelter to another on warning of an attack.

As the threat of nuclear war increased, the Peacekeeper force would have been dispersed by moving 10 missiles and their launchers by rail from each of the four military installations to one of four government reservations. Each reservation would have contained 400 hardened horizontal shelters, unattended and unused on a day-to-day basis, among which the 10 missiles would have been concealed.

Finally, if nuclear war appeared imminent, another 10 missiles and their launchers from each of the four original installations would have been placed on railroad cars and dispersed along 300-mile-long stretches of

predesignated track containing about 60 presurveyed bench marks. Each train would have carried one missile and only one train would have been assigned to each stretch of track. This phase of composite basing was designed to resemble positive control launch of the bomber force.

As Marshall noted, composite basing had several advantages. First of all, it would have been relatively inexpensive compared to some of the other basing modes then under consideration. In 1983, Marshall estimated that a 100-missile force with 10 years of operations and maintenance would have cost about \$27 billion. Second, because composite basing largely relied upon existing technology, it would have been low risk, thereby permitting early deployment. Third, public interface would have been minimized by keeping the Peacekeeper force on military installations and government reservations except when nuclear war appeared imminent. Fourth, the system's flexibility would have enhanced the nation's ability to demonstrate its resolve during crises. Fifth, composite basing's use of multiple hardened shelters for day-to-day protection of the Peacekeeper force did not fully discount the possibility of a bolt-from-the-blue attack. Finally, the system's price to attack when fully dispersed would have been extremely high. By Marshall's estimates, it would have

taken the Soviet Union's entire SS-17, SS-18, and SS-19 force plus more than 3,000 additional warheads to destroy all of the system's possible launch points.

Despite these advantages, composite basing was rejected on several occasions. In 1976-1977, it was dismissed in favor of the first of several attempts to deploy the Peacekeeper in Minuteman silos and MPS basing. During this period, however, the basing mode was briefed within the Air Force and generated some support. Among those receiving the briefing was an Air Force captain who later became Deputy Special Assistant for ICBM Modernization and a leading proponent of rail-garrison basing for the Peacekeeper.

Marshall's next opportunity to promote his hybrid basing scheme occurred in 1981 when the Reagan administration canceled the MPS program. Retired from the Air Force by then, Marshall again was unsuccessful, although representatives from the American Association of Railroads, then lobbying for rail-mobile basing, and Dr. Jim Boone of the Federal Railroad Administration were included in discussions of the concept. Both later were involved in the rail-garrison program. The basing mode again was promoted without success to members of the Congress and the administration in 1983.

Although rail mobility was seriously considered as

an ICBM basing mode as early as 1958, it fell into almost a quarter century of disfavor following McNamara's cancellation of the rail-mobile Minuteman program. Isolated attempts to generate support for the basing mode during this period met with failure. Rail mobility did not receive serious consideration again until the mid-1980s when the number of Peacekeepers to be deployed in Minuteman silos was capped at 50, key decisionmakers recognized that the other basing modes being considered for the Peacekeeper were politically unacceptable, and rail mobility's negative features were moderated by garrisoning the system.

CHAPTER 3

THE GENESIS OF PEACEKEEPER RAIL GARRISON

I have indicated from the very beginning of the MX debate, since the Reagan administration came to power, that I would never vote to put 100 MX missiles in vulnerable positions.

Sen. Sam Nunn¹

There is nothing magic about the [number] 100, and deployment of the MX would reach militarily useful levels starting at 40 or 50.

Sen. Albert Gore²

On 2 October 1981, during an afternoon news conference in the East Room of the White House, Ronald Reagan announced his administration's plans for modernizing the nation's strategic nuclear triad. The bomber force would be modernized by deploying 100 B-1s, outfitting existing bombers with cruise missiles, and developing a stealth bomber--the B-2. The sea-based leg of the triad would be strengthened by deploying additional Trident submarines and developing the Trident

¹Congress, Senate, Release of Production Funds for MX Missiles, 99th Cong., 1st sess., Congressional Record, vol. 131, no. 30, daily ed. (18 March 1985), S3035.

²Congress, Senate, Release of Production Funds for MX Missiles, 99th Cong., 1st sess., Congressional Record, vol. 131, no. 31, daily ed. (19 March 1985), S3123.

II SLBM. Modernization of the ICBM force, the most politically-troublesome leg of the triad, would consist of completing the Peacekeeper missile's development and deploying "a limited number . . . in existing silos as soon as possible." In addition, three long-term basing options would be pursued so that a full complement of Peacekeepers eventually could be deployed. Although these basing modes were not specified, President Reagan made clear that the Carter administration's MPS system and "any other scheme for multiple protective shelters" would not be considered.³

While Reagan's October announcement remained the core of his administration's plans for strategic modernization, the Congress initially refused to fund the Peacekeeper's deployment in existing silos and later rejected closely-spaced basing for the missile. In addition, the administration's plans were augmented twice in 1983, adding expensive programs that would vie with the Peacekeeper for political support and a share of the nation's defense budgets in the years ahead. On 23

³U.S., President, Public Papers of the Presidents of the United States (Washington, D.C.: Office of the Federal Register, National Archives and Records Service, 1981), Ronald Reagan, 1981, 878-879. The three long-term options were ballistic-missile defense, deep-underground basing, and air mobility--the options recommended for further research by the first Townes Commission.

March, during an address televised live from the Oval Office, President Reagan announced the Strategic Defense Initiative (SDI) by calling upon the nation's scientific community "to turn their talents now to the cause of mankind and world peace, to give us the means of rendering . . . nuclear weapons impotent and obsolete."⁴ Just two weeks later, the Scowcroft Commission added yet another weapon system to the debate when it recommended developing a single-warhead ICBM that could be carried by hardened mobile launchers in addition to deploying 100 Peacekeepers in existing Minuteman silos and increasing the administration's emphasis on arms control.⁵ The single-warhead ICBM became known as the Small ICBM (SICBM) or "Midgetman."

As mentioned above, the Scowcroft Commission's tripartite recommendation recognized the lack of consensus regarding ICBM modernization, especially within the Congress where some supported the Peacekeeper, others wanted to deMIRV the ICBM force, and still others preferred arms control to further strategic

⁴U.S., President, Public Papers of the Presidents of the United States (Washington, D.C.: Office of the Federal Register, National Archives and Records Service, 1983), Ronald Reagan, 1983, 448.

⁵The President's Commission on Strategic Forces, Report of the President's Commission on Strategic Forces (Washington, D.C.: GPO, April 1983), 15-19 and 22-25.

modernization. None of these factions, however, constituted a majority of legislators, thereby stalemating the ICBM modernization process. The Scowcroft Commission sought to resolve this situation by creating "a politically sustainable strategic modernization program" that gave each faction some of what it wanted.⁶ In doing so, however, these elements became inextricably linked and remained so until the end of the Cold War. You could not have one without the others.⁷ At the same time, this compromise, as the Scowcroft Commission noted, was "exceedingly fragile." "Its survival and growth will require constant attention by determined pursuit of all elements of the program endorsed by the Congress and a continuation of the valuable dialogue which has been established."⁸

President Reagan approved the Scowcroft Commission's report on 19 April 1983.⁹ The Congress "endorsed" it the

⁶Ibid., 25.

⁷For a discussion of this linkage and the end of the Cold War's effect on it, see Paul N. Stockton, "The New Game on the Hill: The Politics of Arms Control and Strategic Force Modernization," International Security 16, no. 2 (Fall 1991); 146-170.

⁸The President's Commission on Strategic Forces, untitled report, 21 March 1984, 9.

⁹Strategic Air Command, Office of the Historian, SAC Missile Chronology: 1939-1988 (Offutt AFB, NE: Strategic Air Command, 1 May 1990), 73.

following month when it passed concurrent resolutions approving "the obligation and expenditure of [previously authorized and appropriated] funds . . . for MX missile procurement and full-scale engineering development of a basing mode for the MX missile." After considerable debate, House Concurrent Resolution 113 was approved by a vote of 239 to 186 on 24 May 1983. The next day, Senate Concurrent Resolution 26 passed by a vote of 59 to 39.¹⁰

The Breakdown of the Scowcroft Commission Compromise

Despite the fragile but necessary linkage between its elements, the Scowcroft Commission compromise was

¹⁰The debate preceding these votes can be found in Congress, House, Approving the Obligation and Expenditure of Certain Funds for the MX Missile, 98th Cong., 1st sess., H. Con. Res. 113, Congressional Record, vol. 129, no. 71, daily ed. (23 May 1983), H3180-H3202; Congress, House, Approving the Obligation and Expenditure of Certain Funds for the MX Missile, 98th Cong., 1st sess., H. Con. Res. 113, Congressional Record, vol. 129, no. 72, daily ed. (24 May 1983), H3217-H3271; Congress, Senate, MX Missile Basing Mode Funds, 98th Cong., 1st sess., S. Con. Res. 26, Congressional Record, vol. 129, no. 71, daily ed. (24 May 1983), S7313-S7345; and Congress, Senate, MX Missile Basing Mode Funds, 98th Cong., 1st sess., S. Con. Res. 26, Congressional Record, vol. 129, no. 72, daily ed. (25 May 1983), S7409-S7488. For discussions of the Scowcroft Commission's recommendations, see Congress, House, Committee on Armed Services, Department of Defense Authorization for Appropriations for Fiscal Year 1984, Strategic Programs, 98th Cong., 1st sess., 20-22 April and 19 May 1983 and Congress, Senate, Committee on Armed Services, MX Missile Basing System and Related Issues, 98th Cong., 1st sess., 18, 20-22, and 26 April 1983.

challenged from the outset. Opponents of the Peacekeeper, for example, sought to abandon that portion of the commission's proposal. Calling the Scowcroft Commission's report "at once one of the best and worst state papers of the nuclear age," McGeorge Bundy praised the commission for exposing the window of vulnerability as a myth, recommending that the U.S. move toward single-warhead ICBMs, and "seek[ing] to shift the counting rules of strategic arms control from launchers toward warheads." However, Bundy argued, the commission's recommendation regarding the Peacekeeper proceeds "in exactly the opposite direction by placing the first-strike multiple-warhead MX in Minuteman silos, right where Soviet MIRV's could knock it out if ever the Kremlin thought we were about to use it." This, in turn, would require that the U.S. adopt a "use-it-or-lose-it" employment strategy, leading Bundy to conclude that the Peacekeeper's destabilizing qualities outweighed those arguments being made in its favor.¹¹

In addition to those who opposed deploying the

¹¹McGeorge Bundy, "MX Paper: Appealing, But Mostly Appalling," New York Times, 17 April 1983, E19. Another excellent summary of the arguments being made against the Peacekeeper as part of the Scowcroft Commission compromise can be found in Walter Mondale to William Proxmire, 20 May 1983. Mondale's letter is printed in Senate, MX Missile Basing, 24 May 1983, S7314.

Peacekeeper in Minuteman silos, even as part of a political compromise, there were others who favored proceeding with the Scowcroft Commission's recommendations but questioned the Reagan administration's commitment to the SICBM and arms control. As nine members of the House of Representatives wrote in a letter to the President:

The problem is that the [Scowcroft] Commission asks us to accept not only its attractive long-term concept, but its immediate recommendation for the deployment of 100 MX. . . . Meanwhile, statements in the press--attributed to "high ranking officials" in the Department of Defense and others, have already raised a suspicion that there are some in the Administration who embrace the Scowcroft Report not in its entirety, but only as a means to the end of securing Congress' approval for the deployment of the MX.¹²

Regarding the Reagan administration's commitment to arms control, for example, some noted its opposition to the SALT II Treaty and its mistrust of arms control negotiations and agreements in general. As Michael Mandelbaum wrote, "they considered the arms control agreements of the past to have made the country less secure rather than more so, both because their terms were

¹²Albert Gore, Jr., Norman D. Dicks, Les Aspin, Vic Fazio, Thomas S. Foley, Richard A. Gephardt, Dan Glickman, Joel Pritchard, and George O'Brien to Ronald Reagan, 2 May 1983. Printed in Congress, Extension of Remarks, 98th Cong., 1st sess., Congressional Record, vol. 129, no. 58, daily ed. (3 May 1983), E2049.

unfavorable to the United States and because they had a narcotic effect on the American public, inducing a complacency about the nation's defenses that decreased the chances for the measures necessary to strengthen them."¹³ Moreover, when arms control negotiations between the superpowers finally resumed, little progress was made during the remainder of Reagan's first term. Many attributed this lack of progress to what they considered the United States' unrealistic arms control proposals. One early Strategic Arms Reduction Talks (START) proposal, for example, required that the Soviets reduce their arsenal of deployed ICBM warheads by about 60 percent, while the U.S. could have deployed 350 more of the same weapons.¹⁴ Similarly, the zero option proposed as part of the Intermediate Nuclear Forces (INF) negotiations offered to cancel the planned deployment of U.S. Pershing II and ground-launched cruise missiles in exchange for the Soviet Union dismantling the SS-4, SS-5, and SS-20 missiles it already had fielded.¹⁵ As then

¹³Michael Mandelbaum, "The Reagan Administration and the Nature of Arms Control," in American Defense Annual: 1988-1989, ed. Joseph Kruzel (Lexington, MA: Lexington Books, 1988), 194.

¹⁴National Academy of Sciences, Nuclear Arms Control: Background and Issues (Washington, D.C.: National Academy Press, 1985), 74-75.

¹⁵*Ibid.*, 113.

Rep. Albert Gore (D-TN) put it:

I cannot help but think that had [the Scowcroft Commission report] been delivered into the hands of some other administration it would have consolidated opinion. But the Reagan administration lacked both credibility and credentials in arms control.¹⁶

To counter this perception, a number of congressmen sought assurances from President Reagan:

That the United States' negotiating position in START will be speedily updated, in order to bring it into line with both the technical recommendations and the long-term objectives of the Scowcroft Commission report;

That in doing so, the United States will be able to show how the deployment of a given number of MX fits in with these objectives, in terms of its impact on the force posture of both countries;

That, in principle, plans for the deployment of MX, including both numbers and time, can be influenced by the results of arms control; and,

That a major effort will be promptly undertaken to bring sharper focus to the proposed single-warhead ICBM, and to allay concerns that it cannot be realized in a reasonable period of time, at acceptable cost, in deployment modes that are both technically and politically realistic.¹⁷

Similar assurances were sought by William Cohen (R-ME),

¹⁶Congress, Extension of Remarks, A New Proposal for the START Talks, 98th Cong., 1st sess., Congressional Record, vol. 129, no. 114, daily ed. (4 August 1983), E4046.

¹⁷Gore, et al. to Reagan, Congressional Record, 3 May 1983, E2049.

Sam Nunn (D-GA), and Charles Percy (D-IL) in the Senate.¹⁸

Significantly, the same legislators who asked for guarantees regarding the SICBM and arms control also hedged on the number of Peacekeepers that they were willing to approve for deployment. Cohen, Nunn, and Percy, for example, wrote that "if Congress decides to proceed with MX production, it is our opinion that the eventual number of MX missiles to be deployed should be contingent on arms control developments."¹⁹ This and similar statements proved to be harbingers of things to come.

¹⁸They recommended that President Reagan announce his commitment to reformulating the nation's negotiating position at the START talks to include the Scowcroft Commission's recommendations, accept "the principle of a guaranteed mutual build-down of nuclear forces in which each country would eliminate from its operational inventory two nuclear warheads for each one newly deployed," immediately begin development of the SICBM "with an assurance that the program will retain a high priority despite probable constraints in the overall defense budget," and create a bipartisan arms control panel "to advise [the President] on implementing the Commission's arms control recommendations." "Establishing such a body," the senators wrote, "would confirm [the President's] commitment to the formulation and maintenance of a durable framework of U.S. policy in this area." See William S. Cohen, Sam Nunn, and Charles H. Percy to Ronald Reagan, 29 April 1983. Printed in Congress, Senate, The MX Missile System, 98th Cong., 1st sess., Congressional Record, vol. 129, no. 57, daily ed. (2 May 1983), S5750-S5751.

¹⁹*Ibid.*, S5751.

Although Reagan responded to these concerns by reiterating the integrated nature of the Scowcroft Commission's recommendations,²⁰ the Congress also linked the Peacekeeper with the SICBM and arms control through legislation like the Price and Dickinson amendments, modified versions of which were included in the FY 1984 and FY 1985 defense authorization acts, respectively. The Price Amendment limited the number of Peacekeepers that could be deployed until the SICBM attained certain research and development milestones.²¹ The Dickinson Amendment prohibited the purchase of additional Peacekeepers until the President certified to the Congress that the Soviet Union was not acting to "further the control and limitations of types of strategic nuclear

²⁰In his response to Cohen, Nunn, and Percy's letter, for example, Reagan indicated that he would review the administration's START proposals "to develop such modifications as are necessary to reflect the Commission's approach" and make a "major effort to bring the proposal of a small, single-warhead ICBM to fruition on a high priority basis" (Ronald Reagan to Sam Nunn, 12 May 1983. Printed in Senate, Congressional Record, 25 May 1983, S7470).

²¹Congress, House, Department of Defense Authorization Act, 1984, 98th Cong., 1st sess., H.R. 2969, Congressional Record, vol. 129, no. 104, daily ed. (21 July 1983), H5395. For example, not more than 10 Peacekeepers could be deployed until the SICBM's components were tested, its subsystems were demonstrated, and nuclear effects tests on the missile's possible basing modes were completed.

weapon systems similar to the MX."²²

Capping the Peacekeeper in Minuteman Silos

On 22 May 1985, the strongest challenge yet to the Scowcroft Commission compromise began when Sam Nunn, a highly respected member of the Senate Armed Services Committee (SASC) and a supporter of the Peacekeeper ICBM, if survivably based, offered an amendment limiting to 40 the number of Peacekeepers that could be deployed in Minuteman silos.²³ The next day, however, the proposed cap was increased to 50 missiles as Nunn sought to ensure that his measure, now known as the Nunn-Warner Amendment, would receive bipartisan support and not be viewed as a

²²Congress, House, Department of Defense Authorizations, 1985, 98th Cong., 2d sess., H.R. 5167, Congressional Record, vol. 130, no. 64, daily ed. (16 May 1984), H3995.

²³The cap reportedly was set at this level based upon a 1982 Air Force assessment that 40 Peacekeepers was "sufficient to hold the most threatening Soviet silo sanctuaries at risk" but "not sufficient to pose a destabilizing threat of a disarming first strike." See Congress, Senate, National Defense Authorization Act for Fiscal Year 1986, 99th Cong., 1st sess., S. 1160, Congressional Record, vol. 131, no. 69, daily ed. (23 May 1985), S6926. That number also was close to the 36 Peacekeepers Reagan sought to deploy in hardened Minuteman and Titan silos in 1981 and the 42 Peacekeepers that probably would have been approved for deployment by the end of 1985.

Democratic limitation on the Peacekeeper program.²⁴ For his part, President Reagan endorsed the amendment to ward off even more restrictive legislation from the House of Representatives.²⁵ On 23 May 1985, the Nunn-Warner Amendment, expressing the sense of the Senate that "not more than 50 MX missiles should be deployed in existing Minuteman silos,"²⁶ was approved by a vote of 78 to 20.²⁷ The amendment was retained during conference negotiations with the House and became law as part of the FY 1986 defense authorization act.²⁸

²⁴Pat Towell, "Sam Nunn: The Careful Exercise of Power," Congressional Quarterly Weekly Report, 14 June 1986, 1333. A 50-missile cap also made operational sense since Air Force missile squadrons are composed of 50 missiles each.

²⁵Ronald Reagan to Robert Dole, 23 May 1985. Printed in Senate, Congressional Record, 23 May 1985, S6997. Subsequently, the House passed an amendment that would have permanently capped at 40 the number of Peacekeepers deployed in any basing mode. For a full account of the several amendments offered in the House and the parliamentary gymnastics that led to this outcome, see Congress, House, Department of Defense Authorization Act, 1986, 99th Cong., 1st sess., H.R. 1872, Congressional Record, vol. 131, no. 81, daily ed. (18 June 1985), H4377-H4403.

²⁶Senate, Congressional Record, 23 May 1985, S6995.

²⁷Congress, Senate, National Defense Authorization Act for Fiscal Year 1986, 99th Cong., 1st sess., S. 1160, Congressional Record, vol. 131, no. 70, daily ed. (24 May 1985), S7006.

²⁸See Department of Defense Authorization Act, 1986, Statutes at Large, 99, sec. 141, 603-604 (1985).

Although the Nunn-Warner Amendment enjoyed considerable bipartisan support as evidenced by the vote approving it, it also received varying interpretations. For example, Les Aspin (D-WI), the newly elected chairman of the House Armed Services Committee (HASC), and 17 of his colleagues wrote Reagan that the "Congress mandated a permanent, statutory cap on the deployment of MX missiles in fixed silos" and warned that "it would be counterproductive for the Administration to ask for additional MXs." They closed by stating that the "long-running [Peacekeeper] controversy has finally been put to rest. We strongly urge you not to attempt to revisit the issue."²⁹ Sen. John Warner (R-VA), on the other hand, argued that the amendment would not "prejudice against moving forward with the 100-missile program. It leaves that question open pending further study of the whole range of military balance and arms control issues."³⁰ Nunn concurred. "I do not view this as the end of the MX," he told his colleagues. "I view it as an end of MX

²⁹Nicholas Mavroules, Les Aspin, Vic Fazio, Beverly B. Byron, Les AuCoin, Charles E. Bennett, Norman D. Dicks, Steny H. Hoyer, Tony Coelho, Marty Russo, Marvin Leath, John M. Spratt, Albert G. Bustamante, Richard A. Gephardt, Barney Frank, Thomas S. Foley, W.G. (Bill) Hefner, and Solomon P. Ortiz to Ronald Reagan, 15 October 1986.

³⁰Senate, Congressional Record, 23 May 1985, S6997.

basing in fixed vulnerable silos."³¹

For those who saw the cap from the Nunn-Warner perspective, the amendment demonstrated support for the Peacekeeper while pressuring the administration to find a survivable basing mode for the missile. For many, this meant a basing mode employing mobility and deception rather than increased hardening.³² This by no means would be an easy task, however, given the inability of four consecutive administrations to find a basing option for the missile that was technically feasible, affordable, and politically acceptable. As Sam Nunn put it:

I do not submit to my colleagues that finding a new basing mode will be easy. I know it will not. We had considerable dialogue about that last night. I would not even describe it as probable, but I think it is possible.³³

The Search for a Follow-on Basing Mode

Despite Nunn's dire prediction, President Reagan promulgated NSDD-178 on 10 July 1985, thereby instructing the Defense Department to identify a follow-on basing mode for the Peacekeeper ICBM. Eager to deploy more than

³¹Ibid., S6996.

³²See, for example, Nunn, Warner, and Byrd's comments in Ibid., S6996, S6997, and S7002, respectively.

³³Ibid., S6996.

50 of the 10-warhead missiles, the Air Force reexamined many of the 30-plus basing modes suggested over the years and quickly reduced its list to eight: hardened Minuteman silos, closely-spaced superhard silos, closely-spaced superhard silos with concealment, rail mobility, shallow-tunnel basing, ground mobility, deep-underground basing, and the carry-hard concept. In September, the Air Force's Ballistic Missile Office (BMO) was instructed to examine each of them.³⁴

Contrary to the insistence of many in the Congress that the Peacekeeper's next basing mode employ mobility and deception rather than increased hardening, three of the eight alternatives relied on the latter for their survival. Hardened Minuteman basing would have strengthened existing Minuteman silos to the extent permitted by their architecture.³⁵ Deep-underground basing would have placed the Peacekeeper in 4,000-foot-deep tunnels with the missiles boring the last 1,200 feet

³⁴The discussion that follows largely was taken from General Accounting Office, ICBM Modernization: Status, Survivable Basing Issues, and Need to Reestablish a National Consensus (Washington, D.C.: General Accounting Office, September 1986). The GAO's report discusses the BMO study that was part of the larger Air Force effort to identify a follow-on basing mode for the Peacekeeper.

³⁵Ibid., 53.

to the earth's surface.³⁶ Closely-spaced superhard silos called for deploying 50 Peacekeepers in 50 silos constructed to hardness levels about 30 times greater than Minuteman silos.³⁷ Superhardening also would have allowed the silos to be spaced just 1,500 feet apart, thereby using the effects of fratricide to further protect the missiles.³⁸

³⁶Ibid.

³⁷Ibid., 35. Superhard silos "are constructed with inner and outer steel shells with the space between the shells filled with steel bracing and high strength concrete." They have a larger steel content than current silos "and would be placed in much stronger geographical formations to reduce damage by cratering" (Paul Craig, David Hafemeister, Art Hobson, Ruth H. Howes, Barbara G. Levi, John Michener, Mark Sakitt, Leo Sartori, Valerie Thomas, and Peter D. Zimmerman, "Evaluation: Midgetman or MX in Superhard Silos," in The Future of Land-Based Strategic Missiles, ed. Barbara G. Levi, Mark Sakitt, and Art Hobson [New York: American Institute of Physics, 1989], 63). Other sources suggest that silos can be constructed to withstand between 100,000 and 150,000 psi of blast overpressure. See, for example, Art Hobson, "Survivability of Superhard Silos," in The Future of Land-Based Strategic Missiles, 277.

³⁸GAO, ICBM Modernization, 36. Since the Congress' rejection of closely-spaced basing in 1982, a number of Air Force and Defense Nuclear Agency tests demonstrated the ability of superhard silos to survive up to the edge of a nuclear explosion's crater, thereby rendering them immune to all but direct hits by existing Soviet warheads. Thus, while a Soviet SS-18 mod 4 has about a 65 percent chance of destroying a Minuteman silo with a single warhead and an 85 percent chance with two, that probability would have been reduced to 10 and 20 percent, respectively, for silos that were 25 times stronger. See Barry R. Schneider, "U.S. National Security Policy Implications of Superhard ICBM Silos," in Missiles for the Nineties: ICBMs and Strategic Policy, ed. Barry R.

Of the remaining alternatives, two relied upon hardening plus deception. Closely-spaced superhard silos with concealment called for deploying 50 Peacekeepers among 300 silos, and carry-hard basing would have dispersed the same number of missiles among almost 3,800 austere vertical shelters.³⁹ Unlike superhard silos, carry hard's protective elements would have moved with the missiles rather than being built into the shelters, hence the name.⁴⁰ Both basing modes were subject to the PLU limitations discussed in Chapter 2.

Although closely-spaced superhard silos with concealment and carry-hard basing would have involved a nominal degree of mobility--the missiles would have been relocated periodically to preserve their location uncertainty--shallow-tunnel basing, ground mobility, and rail mobility were vastly more mobile. The shallow-

Schneider, Colin S. Gray, and Keith B. Payne (Boulder, CO: Westview Press, 1984), 42-43 and 50. It should be noted, however, that these were high-explosive tests using empty silos. Questions remain about the vulnerability of superhard silos to nuclear detonations and the effect nearby explosions would have on missiles and other equipment in the silos (Eugene Sevin, interview by author, 10 June 1991, Written notes, the Pentagon, Washington, D.C. Sevin is USDA's Director of Offensive and Space Systems).

³⁹GAO, ICBM Modernization, 36-37.

⁴⁰Donald A. Hicks, "ICBM Modernization: Consider the Alternatives," International Security 12, no. 2 (Fall 1987): 179.

tunnel concept would have placed 50 missiles in 50 hardened tunnels each about 23 miles long. Like the trench concept, transporter-erector-launchers would have moved the missiles within their tunnels and could have relocated upon warning of an attack.⁴¹ The basing mode's mobility, however, was limited by the tunnels' length. Ground-mobile basing--deploying 50 Peacekeepers on 50 hard mobile launchers--would have been subject to a similar limitation. Because of the launcher's enormous weight--about 1.5 million pounds--specially constructed roads would have been required to move the missiles.⁴² In contrast, rail mobility would have used the nation's extensive rail network to transport Peacekeeper ICBMs from one location to another. Moreover, the trains could have been concealed among other rail traffic, in tunnels, in buildings connected to the railways, etc. The concept under consideration at the time called for 50 trains operating across approximately 18,000 miles of track. Each train would have carried a single Peacekeeper ICBM.⁴³

Rail mobility, virtually ignored since the early

⁴¹GAO, ICBM Modernization, 38.

⁴²Ibid., 53.

⁴³Ibid.

1960s, was included among the basing options examined by BMO at the insistence of individuals on the Air Staff and the staff of the National Security Council who viewed trains as the most likely mobile basing mode for heavy, outsized loads like the Peacekeeper.⁴⁴ Representative of their early efforts to promote rail mobility was a July 1985 briefing by Bob McMains, then a lieutenant colonel and the Air Force's Deputy Special Assistant for ICBM Modernization, that asserted the basing mode's feasibility, assessed its advantages and disadvantages, and requested additional analysis.

Noting that rail-mobile Minuteman and the Soviet Union's rail-mobile SS-24 demonstrated the concept's technical feasibility, McMains reviewed the pros and cons traditionally associated with rail mobility. Chief among the basing mode's advantages was its price to attack given the size of the nation's railroad system. In addition, its use of existing infrastructure and off-the-shelf technology would have minimized the weapon system's acquisition cost, technical risk, and time required for deployment. On the negative side were rail mobility's high operating cost, public interface, and security

⁴⁴Robert E. McMains, interview by author, 3 July 1991, Written notes, Science Applications International Corporation, McLean, VA.

concerns like espionage, sabotage, and terrorism. McMains noted, however, that this assessment was based upon inadequate and dated information and urged that a new analysis begin immediately to address the basing mode's negative features and improve its credibility.⁴⁵

In November 1985, the Office of the Secretary of Defense directed that four of the eight basing modes be studied in greater detail, although none of the eight were to be eliminated totally from consideration. They were the two closely-spaced superhard silo options, carry hard, and shallow-tunnel basing.⁴⁶ One month later, BMO issued its final report. Calling attention to the basing mode's low cost and high price to attack, it recommended that closely-spaced superhard silos, either with or without concealment, be selected for the Peacekeeper.⁴⁷

⁴⁵The advantages and disadvantages reported in McMains' briefing were taken from Department of Defense, Office of the Deputy Under Secretary of Defense for Research and Engineering (Strategic and Space Systems), ICBM Basing Options: A Summary of Major Studies to Define a Survivable Basing Concept for ICBMs (Washington, D.C.: Department of Defense, December 1980). The briefing also discussed the dedicated-rail option: unmanned transporter-erector-launchers moving along an automated rail network consisting of 22,000 miles of track traveled only by the TELs (Ibid., 57).

⁴⁶GAO, ICBM Modernization, 35.

⁴⁷Ibid., 36. In June 1985, a SAC "Tiger Team" also began examining basing modes for the Peacekeeper. It analyzed closely-spaced superhard silos, superhard silos in Minuteman-spaced basing, rail mobility, multiple

No new analysis of rail-mobile basing was conducted.

While BMO conceded that Soviet technological advances could place superhard silos at risk in the future, it also concluded that the basing mode would provide adequate survivability against identified threats through the turn of the century.⁴⁸ In addition, superhard silos would have been inexpensive relative to the other options examined. With the exception of hardened Minuteman silos, closely-spaced superhard silos had the lowest life-cycle cost of the eight basing modes studied--\$7.7 billion in 1985 dollars for 50 silos and \$17.7 billion for 300 (see table 1).⁴⁹

Notwithstanding BMO's formal recommendation, the Air Force's actual preference was for superhard silos without concealment. According to individuals involved with the issue, the with-concealment option was included to appease supporters of carry-hard and shallow-tunnel basing, options that would have relied heavily on

protective shelters, and ground mobility and concluded that any of the five was acceptable from an operational point of view. Each, in other words, would provide SAC with 500 additional prompt hard-target-kill warheads. See SAC, Missile Chronology, 37-38. Deep-underground basing was not considered because it did not meet the requirement for prompt retaliation.

⁴⁸GAO, ICBM Modernization, 36.

⁴⁹Ibid.

Table 1

**Life-Cycle Cost Estimates for 50 Peacekeeper Missiles
(1985 Dollars in Billions)**

Basing Concept	Life-Cycle Cost
Hardened Minuteman	\$6.6
Superhard silos	7.7
Superhard silos with concealment	17.7
Rail mobile	23.3
Shallow tunnel	30.4
Ground mobile	31.8
Deep-underground basing	33.8
Carry hard	35.5

Source: GAO, ICBM Modernization, 39. The life-cycle costs cited above include the weapon system's acquisition cost and 12.5 years of operations and support.

deception to ensure their survival. The Air Force, however, remained wary of these basing modes because of the additional cost involved, the technical difficulties associated with preserving the location uncertainty of missiles, and their land-use requirements. It was estimated, for example, that shallow-tunnel basing could have required the removal of up to 1,230 square miles of land from private ownership, much of it as a buffer zone

to ensure the system's PLU.⁵⁰ Carry hard's land requirements also were considered a "critical limitation."⁵¹

Although not mentioned in the GAO's account, the Air Force found superhard silos attractive for several other reasons as well. First of all, the U.S. ICBM force had been based exclusively in silos since the late 1950s. Thus, the Air Force understood and felt comfortable with silo-based missiles. Second, superhard-silo technology had been BMO's research focus since the early 1980s.⁵² Therefore, they had an institutional stake in its success. Finally, because significantly more research had been conducted on superhard silos than carry-hard or shallow-tunnel basing, the technical risks associated with the former were fewer and early deployment more likely. Given the above, it is not surprising that closely-spaced superhard silos was the Air Force's

⁵⁰Ibid., 38.

⁵¹Ibid., 37.

⁵²See, for example, a series of reports required by the FY 1984 defense authorization act: Department of Defense, ICBM Modernization Program Annual Report to the Committees on Armed Services of the Senate and the House of Representatives (Washington, D.C.: Department of Defense, 13 January 1984, 15 January 1985, and 15 January 1986). The only other basing technology mentioned in these reports is deep-underground basing. It is described, however, as a low-level research effort.

preference as 1985 drew to a close.⁵³

The Genesis of Rail-Garrison Basing

In early June 1986, an intra-DOD group known as the IJRG (pronounced idge-rig)--acronyms within an acronym that stood for the ICBM Joint Requirements Management Board (JRMB) Review Group--was created to oversee, among other things, the process leading to the JRMB recommending a follow-on basing mode for the Peacekeeper in time for its inclusion in the FY 1988 defense budget.⁵⁴ Headed by Brig. Gen. Charles A. May, Jr.--a command pilot with a background in strategic bomber operations who became the Air Force's fourth and final Special Assistant for ICBM Modernization the previous summer--the IJRG included representatives from May's office, various Air Staff agencies, BMO, SAC, and the offices of the Under Secretary of Defense for Research

⁵³Larry D. Welch, interview by author, 24 June 1991, Written notes, the Institute for Defense Analyses, Alexandria, VA.

⁵⁴The JRMB was created on 3 June 1986 to replace the Defense Systems Acquisition Review Council (DSARC) as the senior DOD panel responsible for reviewing the status of major weapon systems at key points in the acquisition process (James A. Russell, "Pentagon Replaces Key Review Board," Defense Week, 7 July 1986, 5). The JRMB, in turn, was replaced by the Defense Acquisition Board. The IJRG also was charged with examining MIRVed and single-warhead versions of the SICBM, various basing modes for the small missile, and the application of ballistic-missile defenses to both the SICBM and the Peacekeeper.

and Engineering (USDRE) and the Under Secretary of Defense for Policy (USDP).⁵⁵

As the IJRG began its deliberations, General May stressed that the group's analysis should build upon the Scowcroft Commission compromise and BMO's 1985 basing study. Calling the Scowcroft Commission report the IJRG's "bible," May sought to portray the deployment of additional Peacekeepers and the SICBM's continued development as complementary rather than competing programs. Furthermore, the IJRG's analysis would begin with the four basing modes previously considered by BMO. Let's not go back to ground zero, May implored at one of the group's early meetings.

Both pillars of the IJRG's foundation proved to be infirm, however. Despite public statements to the contrary, virtually everyone within the military and the administration viewed the Peacekeeper and the SICBM as competitors, with the vast majority preferring the former because of its lower cost and earlier availability. Some also felt that the small missile had been forced upon the

⁵⁵Much of the discussion that follows is based upon or supported by unclassified notes taken during various IJRG meeting held between June and December 1986.

Reagan administration by Democrats in the Congress.⁵⁶ Thus, development of the SICBM was viewed, at best, as the price to be paid to deploy additional Peacekeepers. In addition, another basing mode was added to the IJRG's analysis less than a month after its first meeting. Rail mobility had reemerged; this time, however, in the guise of rail-garrison basing.

While rail garrison's paternity is not 100 percent certain, most of those interviewed credit Col. John Douglass with the idea.⁵⁷ As the NSC staff member responsible for strategic modernization, Douglass spent much of his Air Force career in acquisition and policy positions, including several years as special assistant to Dick DeLauer, then Under Secretary of Defense for

⁵⁶Even General May acknowledged that the Air Force leadership, with a few exceptions, disliked the SICBM (Charles A. May Jr., interview by author, 25 April 1991, Written notes, the Pentagon, Washington, D.C.), while those who considered the small missile "theoretically" superior to the Peacekeeper were unwilling to pay the costs associated with deploying 500 missiles on 500 hard mobile launchers (Welch, interview, 24 June 1991).

⁵⁷Douglass, in turn, suggested that Darrell Marshall was probably the "father" of rail-garrison basing, although Douglass apparently was unaware of Marshall's earlier work when he created his version of the concept in 1986. Unfortunately, Douglass stated, Marshall was "10-15 years ahead of his time" (John W. Douglass, interview by author, 19 July 1991, Written notes, the Pentagon, Washington, D.C.). The discussion that follows, unless otherwise noted, is taken from the aforementioned interview with Brigadier General Douglass.

Research and Engineering. In that capacity, he helped plan and promote the Reagan administration's strategic modernization program. Described by some as a forceful, charismatic, knowledgeable, and articulate professional and by others as "a colonel who wore four stars" and "the 'Ollie North' of missiles," Douglass was not afraid to use his White House credentials to promote rail-garrison basing for the Peacekeeper and its political linkage to the SICBM. He also was not beyond "reading the riot act" to those opposed to that combination of programs. One's opinion of his tactics notwithstanding, however, "Douglass," as one participant put it, "was central to getting the program accepted by the President."

Concerned that the Pentagon, if left to its own devices, would select closely-spaced superhard silos, carry-hard basing, or the shallow-tunnel concept as the Peacekeeper's next basing mode--alternatives that he considered unacceptable to those members of the Congress willing to consider the deployment of additional Peacekeepers--Douglass began his own analysis of rail mobility in the spring of 1986. He soon was joined in that effort by other supporters of rail-mobile basing, including Col. Tom McMullen, Colonel McMains successor as Deputy Special Assistant for ICBM Modernization, Maj. Tom Maxwell of Colonel McMullen's staff, and Dr. Boone of the

Federal Railroad Administration (FRA).

To Douglass' mind, closely-spaced superhard silos--the Air Force's preference--was unacceptable for several reasons. First of all, although many analysts, including those at BMO, felt that the Soviets would be unable to threaten superhard silos for years to come, others were suggesting the opposite. Art Hobson, for example, speculated that "[highly-accurate warheads] and earth penetrators, separately or in combination, could be a reality for the mid-1990s, and would make superhard silos very vulnerable."⁵⁸ Douglass wanted to avoid losing yet another basing mode to contradictory scientific arguments.

Likewise, the fratricide concept--placing silos closer together to increase their survivability--remained counterintuitive and subject to possible countermeasures. According to calculations by Craig, et al., a 500-kiloton warhead with Peacekeeper accuracy penetrating to a depth of five meters would have a 73 percent chance of destroying a superhard silo. Moreover, this single-shot kill probability would approach 100 percent if warheads with yields of 2.5 megatons or greater were used.⁵⁹

⁵⁸Hobson, "Superhard Silos," 275.

⁵⁹Craig, et al., "Evaluation," 63-64.

Also, since improvements in accuracy have generally outpaced efforts to increase hardening, warheads with accuracies measured in the tens of meters could destroy superhard silos even if smaller yields were used. "In order for a given silo or bunker to retain its present probability of survival," one analyst wrote, "its ability to resist blast overpressure (measured in psi) must improve 700 percent for every 100 percent improvement in accuracy."⁶⁰ Concerns also persisted regarding the Soviet Union's ability to turn the effects of fratricide against the U.S. by pinning down the closely-spaced Peacekeepers, thereby preventing their launch in response to a Soviet first strike.

Finally, superhard silos are, in essence, an updated version of the "dense-pack" basing scheme. While it might have been possible to make a case for superhard silos given the additional data available by 1986, many dismissed silo basing of any sort following the Congress' rejection of closely-spaced basing in 1982.⁶¹ As one Senate Armed Services Committee staffer put it, superhard

⁶⁰Schneider, "Superhard ICBM Silos," 51.

⁶¹In a letter to Secretary Weinberger, for example, Representative Aspin argued that "super-hardening is not another basing mode" and threatened to oppose the administration's request for spare and test missiles if it tried to deploy additional Peacekeepers (Les Aspin to Caspar Weinberger, 19 August 1985).

silos probably could not have been sold to the Congress with less than five years of hard work and demonstration. Even then, it would have been difficult to get past the "giggle factor." "It is difficult to refute someone's one-liner . . . with technical facts," the staff member noted.⁶²

Similar questions were raised about the acceptability of carry-hard and shallow-tunnel basing, including concerns about the Air Force's ability to preserve the location uncertainty of deceptively-based missiles, the basing modes' cost and land-use requirements, and the Soviet Union's ability to overwhelm these and similar systems by proliferating warheads. Both options also were reminiscent of the MPS-style basing modes President Reagan ruled out in 1981.

Colonel Douglass began his analysis by reassuring himself of what he and others suspected was the case, that rail mobility was technically feasible for the Peacekeeper. To that end, his initial research included reviewing data from the rail-mobile Minuteman program, receiving intelligence briefings on the SS-24, examining maps of the U.S. and Soviet railroad systems, and

⁶²Bill Hoehn, interview by author, 12 August 1991, Written notes, Russell Senate Office Building, Washington, D.C.

discussing the feasibility of rail-mobile basing with Dr. Boone at the FRA. Later, Douglass, Boone, and representatives from the Air Staff, BMO, and SAC set out on a number of "fact-finding trips" across the nation's railways to determine, among other things, how much of the railroad system could support the deployment of Peacekeeper trains, the rules regulating the operation of trains, the average number of train movements per day, the average speed and length of trains, and how many railroad accidents occur annually, why they occur, and how trains are rerailed following a mishap. As Douglass remarked, he and his associates eventually "rode every major railroad in the United States."

Although Douglass soon was convinced of the basing mode's technical feasibility, concerns about rail mobility's operating cost, public interface, and security persisted. Douglass noted, however, that these negative features would be minimized if the weapon system was garrisoned and dispersed only during times of national need. He and others also recognized that rail-garrison basing would provide a number of secondary benefits, including a weapon system comparable to the SS-24 for symmetry in arms control negotiations, easier arms control verification, and an additional means of displaying resolve during crises. Moreover, Peacekeeper

rail garrison would demonstrate to the Soviets and others the United States' determination to modernize its land-based missile force, including the deployment of mobile ICBMs.⁶³

Although garrisoning the trains largely eliminated the problems traditionally associated with rail-mobile basing, it created another issue that soon became the central point of contention for those opposed to Peacekeeper rail garrison. Because the trains would have been garrisoned on a day-to-day basis, their survivability depended on hours of strategic warning and a decision to disperse the force. In other words, they would have been vulnerable to a bolt-from-the-blue attack. This concern was addressed by simply redefining the standard by which ICBM basing modes are evaluated. Rather than demanding that Peacekeeper rail garrison be survivable regardless of the level of attack warning available, survivability with strategic warning was deemed acceptable. And to support this new standard,

⁶³Tom McMullen, telephone interview by author, 9 May 1991, Written notes, Aerojet ASRM Division, Iuka, MS. The rail-mobile SS-24's existence became public in April 1985. See Department of Defense, Soviet Military Power (Washington, D.C.: GPO, April 1985), 25 and 30. In the spring of 1986, an Air Force program designed to find and track strategic relocatable targets discovered that the Soviets kept their mobile land-based missiles garrisoned much of the time.

Douglass and other advocates of the rail-garrison concept argued that a bolt-from-the-blue attack was irrational and that strategic warning would be available and acted upon in a timely manner.

Taking their cue from the Scowcroft Commission, rail garrison's supporters stressed the irrationality of a bolt-from-the-blue attack on all or part of the ICBM force given the triad's synergistic nature and the number of bomber- and submarine-based weapons that would survive to retaliate. As the Scowcroft Commission put it:

the existence of several components of our strategic forces permits each to function as a hedge against possible Soviet successes in endangering any of the others. . . . And although the survivability of our ICBMs is today a matter of concern (especially when that problem is viewed in isolation) it would be far more serious if we did not have a force of ballistic missile submarines at sea and a bomber force.⁶⁴

Besides, the missiles could have been launched from their garrisons on tactical warning if necessary.

To support their position that strategic warning would be available and acted upon, rail garrison's supporters pointed to the tens of billions of dollars spent in recent years upgrading the United States' warning capabilities and noted that dispersing the

⁶⁴President's Commission, Report of the President's Commission, 7.

Peacekeeper trains would be just one of several actions taken in response to that warning.⁶⁵ Regarding the former, Gen. Larry Welch, the Air Force Chief of Staff, found it "incredible, absolutely incredible that some people think we will not have adequate warning of an attack" given the hundreds of satellite photos of the Soviet Union that the CINCSAC receives daily.⁶⁶ Gen. John Chain, the CINCSAC, likewise was confident in his knowledge of the location and alert status of Soviet nuclear forces. "Generation would be perceived," he argued.⁶⁷ Rail garrison's supporters also noted that dispersing the Peacekeeper trains would be just one of several actions taken during a crisis. The U.S. also would generate additional bombers and ballistic-missile

⁶⁵In 1989, Les Aspin noted that the U.S. invested \$60 billion during the previous ten years on "intelligence assets to warn us well in advance that the Soviets are preparing for war." He added, however, that "the question is not whether we will have warning. The question is whether we will act on it" (Les Aspin, "What the Air Force Ought to Know About What the Congress Thinks About ICBM Modernization," address to the Air University, Maxwell AFB, Alabama, 21 March 1989). This figure also is mentioned in Larry D. Welch, address before the Institute for Foreign Policy Analysis, Washington, D.C., 9 March 1989.

⁶⁶Quoted in Peter Almond, "Air Force Defends MX Force," Washington Times, 1 March 1989, A7.

⁶⁷John T. Chain, telephone interview by author, 20 June 1991, Written notes, Burlington Northern Railroad, Fort Worth, TX.

submarines to alert status and disperse the bomber force to a larger number of airfields. Furthermore, if the CINCSAC was granted the authority to disperse the Peacekeeper trains, as is currently the case with strategic bombers, the likelihood of those trains remaining garrisoned during a crisis would diminish even further. The arguments made for and against Peacekeeper rail garrison are discussed more fully in the following chapter.

Bureaucratic Reactions to Rail-Garrison Basing

By early July 1986, the rail-garrison concept had been added to the list of basing options being analyzed by the IJRG, and the next month it was retained by the JRMB when that body formally reduced to four the number of basing modes being considered for the Peacekeeper. The others were superhard silos (the with- and without-concealment options were combined into one), the carry-hard concept, and shallow-tunnel basing.⁶⁸ As the IJRG's membership became aware of rail-garrison basing, however, their reactions varied. Officials in USDP and USDRE

⁶⁸Thomas Maxwell, telephone interview by author, 2 May 1991, Written notes, Aerojet ASRM Division, Iuka, MS. At this point, rail garrison was known as rail-mobile garrison. The name was changed in September 1986 to emphasize that the missile trains would be garrisoned day to day rather than mobile.

opposed it, albeit for different reasons, while the Air Force leadership generally was quick to embrace the concept.

Officials in USDP, that agency within the Office of the Secretary of Defense (OSD) responsible for arms control policy, wanted to ban mobile ICBMs, and from November 1985 through September 1989 the United States' position in the START talks reflected that preference.⁶⁹ Given the obstacles encountered during previous attempts to deploy a mobile ICBM, USDP's leadership--most significantly Fred Ikle, the Under Secretary of Defense for Policy, and Richard Perle, Assistant Secretary of Defense for International Security Policy--felt that the U.S. either was unlikely to ever do so or, if it did, that public interface concerns would render the United States' missiles significantly less mobile than their

⁶⁹As several OSD and Air Force arms control officials noted, while the proposed ban on mobile ICBMs was seen by many as a negotiating ploy, USDP was seriously pursuing that objective. The ban was first included in the United States' 1 November 1985 START proposal and was eliminated at the ministerial between Secretary of State Baker and Soviet Foreign Minister Shevardnadze that was held in Wyoming during 22-23 September 1989. See U.S. Arms Control and Disarmament Agency, Office of Public Affairs, "The Strategic Arms Reduction Treaty: Chronology," fact sheet, 29 July 1991, 4 and 13.

Soviet counterparts.⁷⁰

They also favored a ban because of the difficulties associated with verifying mobile missiles.⁷¹ As one OSD arms control official pointed out, verification would require, among other measures, continuous monitoring of the exits from final assembly facilities for mobile ICBMs, a level of intrusiveness to which the Soviets were not yet ready to agree in 1986. Moreover, even if the Soviets did agree to this type of inspection, as they eventually did, the U.S. still could not be sure how many missiles had been produced and stockpiled before monitoring began. As the aforementioned OSD official put it, "the United States isn't even sure of the number of mobile ICBMs the Soviets have deployed to date, let alone the number they have produced."

Perhaps as significant as USDP's concerns about the United States' willingness to deploy and ability to verify mobile ICBMs was their potential effect on SDI. Given USDP's enthusiasm for strategic defenses following President Reagan's March 1983 "Star Wars" speech,

⁷⁰Frank J. Gaffney, interview by author, 6 June 1991, Written notes, the Center for Security Policy, Washington, D.C. and Richard N. Perle, telephone interview by author, 26 June 1991, Written notes, the American Enterprise Institute, Washington D.C.

⁷¹Ibid.

individuals like Ikle and Perle were concerned that mobile ICBMs, especially the more costly SICBM, would absorb funds that otherwise could be spent on SDI.⁷² As Frank Gaffney, then Deputy Assistant Secretary of Defense for Nuclear Forces and Arms Control Policy, put it, the money that otherwise would be spent on the SICBM "can buy you an awful lot of defense . . . [that] is more significant than the marginal contribution of 500 additional warheads."⁷³ Moreover, the deployment of mobile ICBMs would have eliminated an important argument in favor of strategic defenses--strengthening deterrence by protecting otherwise vulnerable land-based missiles. Officials in USDP felt that enough political and economic capital had been spent trying to make ICBMs more survivable through various combinations of hardening, concealment, and mobility; it now was time to employ defenses to that end. "Spend money on SDI if you want to make ICBMs survivable," Perle recommended.⁷⁴

⁷²Ibid.

⁷³Quoted in David J. Lynch, "Gaffney Favors Limited Anti-Missile Defense," Defense Week, 2 February 1987, 2.

⁷⁴Perle, interview, 26 June 1991. In contrast with USDP, the Air Force generally was unenthusiastic about strategic defenses for the ICBM force. It didn't want to rely upon other weapon systems for the survivability of its missiles. As John Toomay put it, "insofar as possible, Triad systems are self contained--neither relying on outside help nor reacting to outside

Finally, from the USDP point of view, the deployment of mobile ICBMs was not only unlikely and unwanted but unnecessary. As Richard Perle observed:

The MX didn't make sense as a retaliatory weapon. If you want a weapon that can survive [a nuclear first strike] and respond afterwards, Trident is the way to go. What says the retaliatory hard-target-kill force has to be land based?⁷⁵

Still, most USDP officials agreed that the ICBM leg of the triad should be retained in one form for another "for synergy reasons"--to compensate for weaknesses in the other legs and as a hedge against threats to the strategic bomber and submarine forces.⁷⁶

Fortunately for rail garrison's supporters, USDP's influence regarding Peacekeeper basing was limited by a number of factors, including its preoccupation with arms control matters, Caspar Weinberger's desire to see 100

influences" (John C. Toomay, "Strategic Forces Rationale --A Lost Discipline," International Security 12, no. 2 [Fall 1987]: 194). Therefore, although an examination of defenses was part of the IJRG's mandate, it was performed separately and largely ignored.

⁷⁵Perle, interview, 26 June 1991.

⁷⁶Gaffney, interview, 6 June 1991. An obvious exception was Fred Ikle who felt that ICBMs were no longer necessary. As he put it in one interview, "[ICBMs] are getting almost as outmoded as horse cavalry were at the beginning of the Second World War. . . . If the U.S. has strong sea-based and bomber nuclear forces, why bother spending huge sums of money to ensure ICBM survivability?" (Peter Grier, "Mobile Missile Debate Heating Up," Christian Science Monitor, 3 April 1989, 8).

Peacekeeper deployed, and Weinberger's preference that USDRE play the predominant role within OSD regarding ICBM modernization.

As mentioned above, arms control negotiations with the Soviet Union got off to a slow start during the Reagan administration's first term. The INF talks didn't begin until late November 1981, and the START negotiations didn't get underway until early the next summer. Moreover, once the negotiations began, they were cut short when the Soviet delegation, in response to the deployment of U.S. Pershing II and ground-launched cruise missiles in Western Europe, walked out of the INF negotiations and refused to set a date to resume the START talks. In contrast, the Reagan administration's second term was filled with arms control activity with USDP playing a key role. In addition to concluding the INF Treaty, the U.S. and the U.S.S.R. began new negotiations on nuclear and space issues and laid the foundation for the START agreement. More specifically, during the months preceding the selection of Peacekeeper's next basing mode, USDP and the rest of the arms control community were busy incorporating the results of the October 1986 Reykjavik Summit into a new START proposal and responding to the Soviet Union's

latest arms control initiatives.⁷⁷

In addition to its preoccupation with arms control, USDP's influence also was limited by Secretary of Defense Weinberger's support for a balanced nuclear triad and the deployment of 100 Peacekeepers as recommended by the Scowcroft Commission.⁷⁸ In 1981, the Reagan administration set out to modernize all three legs of the triad, including the deployment of 200 Peacekeeper missiles. By 1986, however, it had succeeded in securing from the Congress a commitment to deploy just one-quarter of that number. Since Weinberger had taken the lead in selling the strategic modernization program, he also received much of the blame for the administration's failure to deploy more than 50 of the 10-warhead ICBMs. Thus, although he was tiring of the search for a politically-acceptable basing mode and increasingly interested in strategic-defensive rather than strategic-offensive systems, Weinberger was inclined to make one more attempt at resolving the issue to his satisfaction.⁷⁹

⁷⁷ACDA, "START Chronology," 6-7.

⁷⁸This point was made by numerous interviewees from USDP, USDRE, the Air Staff, and other organizations.

⁷⁹Ibid. Weinberger's interest in the Strategic Defense Initiative versus ICBM modernization is reflected in his autobiography which contains only scattered

Finally, USDP's power was constrained by Weinberger's preference that USDRE play the predominant role within OSD regarding ICBM modernization.⁸⁰ This was a natural choice, according to former JCS chairman Adm. William Crowe, since USDRE was involved with missile basing on a daily basis and had a better understanding of the technical side of the issue.⁸¹ Unlike USDP, however, USDRE favored the carry-hard concept over defending the Peacekeeper with SDI.

USDRE preferred the carry-hard concept for several reasons, including the high price required to attack and destroy, even in a bolt-from-the-blue situation, 50 missiles concealed among thousands of austere shelters. Unlike rail garrison's supporters, many in USDRE, including Dr. Donald Hicks, the Under Secretary, doubted that the U.S. would react to strategic warning in a timely manner. Therefore, any follow-on basing mode for

references to the Peacekeeper and just one reference to the SICBM but devotes an entire chapter to SDI. See Caspar W. Weinberger, Fighting for Peace: Seven Critical Years in the Pentagon (New York: Warner Books, 1990). Also see Ronald Reagan, An American Life (New York: Simon & Schuster, 1990). It too contains numerous references to SDI but few regarding the Peacekeeper and none for the SICBM. Neither book mentions Peacekeeper rail garrison.

⁸⁰Perle, interview, 26 June 1991.

⁸¹William R. Crowe, Jr., interview by author, 5 August 1991, Written notes, The Center for Strategic and International Studies, Washington, D.C.

the Peacekeeper should be survivable regardless of the level of attack warning available.⁸²

Carry hard's supporters also claimed that it would cost less to build additional carry-hard shelters than it would for the Soviets to threaten them by proliferating warheads. Carry-hard basing, therefore, could react to an expanded Soviet threat in a cost-effective manner. This would not have been the case with superhard silos or shallow-tunnel basing, they argued.

Finally, there was an element of "not invented here" in USDRE's opposition to the rail-garrison concept. Key individuals within that organization spent considerable time, energy, and prestige trying to reduce the vulnerability of ICBMs through deceptive basing and hoped to see a return on their investment. "When someone associates their name with a system," General Chain noted, "it is difficult to walk away from it."⁸³

Like USDP, however, USDRE's power also was restricted, perhaps most significantly by Dr. Hicks' departure at the height of the Peacekeeper basing debate. Among other things, the Goldwater-Nichols Defense Reorganization Act created the position of Under

⁸²Donald A. Hicks, interview by author, 5 June 1991, Written notes, Hicks and Associates, Inc., McLean, VA.

⁸³Chain, interview, 20 June 1991.

Secretary of Defense for Acquisition (USDA) beginning in FY 1987, while reducing Hicks' billet to the assistant-secretary level. When Hicks was not asked to become USDA, a position he sought, he resigned. From then until his resignation became effective, Hicks' interest in and influence on Peacekeeper basing declined significantly.⁸⁴

The situation did not improve much when Richard Godwin became USDA on 1 October 1986. Preoccupied with defining USDA's position within the Defense Department and coming to grips with the Pentagon's byzantine politics, Godwin served as more of a barrier to than a conduit for those advocating carry-hard basing. Moreover, USDP's influence regarding ICBM modernization increased during this period, although it remained circumscribed for the reasons noted above. As Colonel McMains, by then special assistant to Hicks and then Godwin, explained, ICBM modernization became more of a policy issue as USDA's focus evolved toward "how to buy, not what to buy."⁸⁵

In addition to the above, both USDP and USDRE/USDA were affected by the decentralization of power that characterized the Weinberger Pentagon. Although

⁸⁴Sevin, interview, 10 June 1991.

⁸⁵McMains, interview, 3 July 1991.

Weinberger brought "an unusual blend of private and public experience" with him to the Defense Department--he had, for example, served in both the legislative and executive branches of California state government and was director of the Office of Management and Budget; Secretary of Health, Education, and Welfare; and vice president and general council of the Bechtel Corporation before becoming Secretary of Defense--his experience with defense issues was limited.⁸⁶ He also shared the perception, common among conservatives and military personnel, that micromanagement of the armed services by civilians undermines the nation's defense efforts.⁸⁷ Weinberger's tendency, therefore, was to defer to the military's advice over OSD's on matters like Peacekeeper basing. One observer summarized Weinberger's relationship with his staff and the armed services as follows:

deferring to uniformed expertise simply fit with a management style that emphasized decentralized execution. Weinberger preferred instead to concentrate on arguing the Pentagon's case before the Congress and the public and brokering big ticket issues like

⁸⁶Richard A. Stubbing with Richard A. Mendel, The Defense Game: An Insider Explores the Astonishing Realities of America's Defense Establishment (New York: Harper & Row, 1986), 368-373.

⁸⁷Ibid., 392.

arms control.⁸⁸

While OSD was unable to reach a consensus regarding follow-on basing for the Peacekeeper, the Air Force leadership, increasingly concerned about the acceptability of superhard silos to the Congress, began supporting the rail-garrison concept in the summer of 1986. Although initially hesitant because of rail garrison's need for strategic warning, they were solidly behind the basing mode by late October.

General Chain, for example, became an early and influential advocate shortly after assuming command of SAC from General Welch in June 1986. After being briefed on superhard silos, the carry-hard concept, and shallow-tunnel basing, Chain decided that all three failed his "father-in-law standard" and, therefore, were unsalable. If Chain could not explain a concept in five minutes to

⁸⁸David J. Lynch, "The Rap on Cap: He Let the Uniforms Decide All," Defense Week, 9 November 1987, 2. An excellent barometer of the distribution of power in the Pentagon is the status of Program Analysis and Evaluation (PA&E). Created during McNamara's tenure at the Pentagon to provide an independent source of information and analysis for the Secretary of Defense, PA&E was considered "a distasteful anachronism representative of the worst of Democratic defense planning" during the Weinberger years, and its status was downgraded from the assistant-secretary level to that of director. As power in the Pentagon was recentralized following Weinberger's departure, however, PA&E was rehabilitated. See, for example, David J. Lynch, "Cheney Budget Signals Return of 'The Whiz Kids,'" Defense Week, 8 May 1989, 8.

his father-in-law, a bright man who didn't have a background in defense-related issues but was interested in them, he felt that the average American and his representatives in Washington also were unlikely to understand and support it. Rail-garrison basing, by comparison, was much easier to comprehend. Moreover, Chain was convinced that the U.S. would have strategic warning and react to it in a timely manner, thereby rendering the Peacekeeper trains and their missiles survivable.⁸⁹

Although he claims that it didn't affect his views on the subject,⁹⁰ it certainly wasn't harmful to rail garrison's prospects that Chain--a pilot who, until he became CINCSAC, had spent all of his operational assignments in the tactical air force--was what several observers described as a "train buff." As they recounted, the general kept a railroad cap on display in his office and began briefings on Peacekeeper rail garrison with a photo of his grandfather, who had worked for the railroads, leaning out of a locomotive. Upon retiring from the Air Force, General Chain became executive vice president of Burlington Northern Railroad.

⁸⁹Chain, interview, 20 July 1991.

⁹⁰Ibid.

Nor did it hurt that the rail-garrison concept was considerably less expensive than carry-hard and shallow-tunnel basing. Although Chain contends that price was not a big issue in 1986⁹¹--defense budgets had just begun to decline following years of unprecedented peacetime growth--others recalled a conscious effort to reduce rail garrison's acquisition cost below \$5 billion in FY 1982 dollars.⁹² A BMO briefing and comments at an IJRG meeting indicate that rail garrison's acquisition cost was estimated at \$4.9 billion by the end of October 1986, with annual operations and support costs of about \$200 million. Adjusted for inflation, this put the basing mode's life-cycle cost at \$8.8 billion in FY 1985 dollars, just \$1.1 billion more than closely-spaced superhard silos.⁹³ This was accomplished, a former BMO cost analyst pointed out, by approaching Peacekeeper rail garrison in a realistic rather than a worst-case manner. "Our cost estimates were not overly optimistic, but they didn't assume any major risks either," the analyst noted.

⁹¹Ibid.

⁹²Jim Mammen, interview by author, 11 April 1991, Written notes, the Pentagon, Washington, D.C. Mammen became the PEM for Peacekeeper rail garrison following Tom Maxwell's departure.

⁹³As in table 1, Peacekeeper rail garrison's life-cycle cost is based on 12.5 years of operations and support.

General Chain's support for the rail-garrison concept was essential. As one high-ranking OSD official put it, "if Chain was not the intellectual source behind Peacekeeper rail garrison, he gave it the push it needed." Perhaps the most important push Chain gave the basing mode was selling General Welch on the idea. Welch, a fellow Tactical Air Command pilot who served as CINCSAC immediately prior to becoming Air Force Chief of Staff, was introduced to the concept by Chain at a Washington, D.C. reception in August 1986. During their discussion of Peacekeeper basing, Chain hypothesized that if you asked those concerned about the vulnerability of land-based missiles what the Air Force must do about the situation within the next 24 hours they would answer that nothing need be done. Moreover, if you asked the same question every day for five years, you would get the same response time and again. Therefore, Chain suggested, why not select a basing mode for the Peacekeeper that would be low cost and have little day-to-day public interface but could become survivable when survivability was necessary. Welch agreed.⁹⁴

Although General Welch had been a supporter of closely-spaced superhard silos and continued to prefer

⁹⁴Welch, interview, 24 June 1991.

that basing mode from a technical standpoint, he increasingly was concerned about its political acceptability. Rail garrison, on the other hand, was technically feasible, the price was right, and it had not been rejected previously by the Congress. "Lots of [basing] modes were floating around, but they had been discredited," Welch recalled. "We didn't want to look at additional basing modes, we just wanted to pick one that could sell."⁹⁵ That month, SAC formally added rail-garrison basing to the options it was examining for the Peacekeeper,⁹⁶ and by early September members of the IJRG were reporting considerable interest in the basing mode by senior Air Force officers.

As Colonel McMullen noted, Welch and Chain's early support for rail-garrison basing made it easier to sell the concept to skeptics in the Air Force.⁹⁷ Still, not everyone was easily convinced of the basing mode's merits, most significantly BMO and its commander, Maj. Gen. Aloysius Casey. While others in the Air Force were rallying behind rail-garrison basing, General Casey continued to express his preference for superhard silos.

⁹⁵Ibid.

⁹⁶SAC, Missile Chronology, 83.

⁹⁷McMullen, interview, 9 May 1991.

"We favor [superhard silos] for cost, near term schedule and the maturity of the advanced development work [that has been done]," Casey was quoted as saying during an August 1986 interview.⁹⁸

Dismissing suggestions that closely-spaced superhard silos would be unacceptable to the Congress because of their association with the ill-fated "dense-pack" proposal, Casey instead called attention to the tests conducted since then demonstrating the feasibility of superhard silos and the legislature's duty to objectively weigh this new evidence. "There's a requirement of good faith on both sides," Casey asserted. "If indeed [superhard silos are] the best way to do it . . . there's some obligation by the Congress to consider that."⁹⁹

Although BMO's perception of the rail-garrison concept began to change as it learned more about the basing mode, it was not until Casey's promotion and reassignment that BMO became an advocate. As one BMO staff officer put it, once Casey left in October 1986, "BMO was allowed to become more pragmatic in its

⁹⁸David J. Lynch, "Air Force Leans Toward Densepack Rerun on MX," Defense Week, 11 August 1986, 1. Carry-hard and shallow-tunnel basing, although not eliminated from consideration, had more technical problems to overcome than superhard silos, Casey went on to say (Ibid.).

⁹⁹Ibid., 10.

outlook," eventually becoming "a true believer in the rail-garrison Peacekeeper." An October 1986 BMO briefing, for example, concluded that while there were still questions to be answered about rail-garrison basing, "we can see no show stoppers."

On 23 October, General Chain publicly announced his preference that the second-50 Peacekeeper ICBMs be deployed on trains garrisoned at military bases,¹⁰⁰ and less than a week later rail garrison became SAC's recommended basing option.¹⁰¹ Although Chain emphasized that his preference had not been approved by the Air Force, the Defense Department, or the White House,¹⁰² there was by then widespread support for the basing mode within the Air Force and, of course, strong support from Colonel Douglass at the NSC. Secretary Weinberger, however, remained uncommitted. Reportedly surprised by Chain's announcement--notes from the 30 October IJRG meeting indicate that the Defense Secretary wasn't even aware that rail-garrison basing was an option being considered for the Peacekeeper--Weinberger didn't express

¹⁰⁰Richard Halloran, "Air Force Commander Wants to Place MX Missiles on Trains," New York Times, 27 October 1986, A18.

¹⁰¹SAC, Missile Chronology, 84.

¹⁰²Halloran, "Air Force Commander," A18.

a preference for any one basing mode during a subsequent meeting on the subject with under secretaries Ikle and Godwin. He did, however, reiterate his opposition to the SICBM.

Weinberger's failure to express a preference for one of the four Peacekeeper basing options and his lack of support for the SICBM afforded rail garrison's opponents another opportunity to try and stop its growing momentum. USDA, for example, protested that rail garrison's evaluation by a new criterion--survivable with strategic warning rather than regardless of warning--required that the same criterion be applied to other prospective basing modes as well. It was possible, they argued, that another of the 30-plus basing modes suggested over the years might prove to be superior if evaluated by this new standard.¹⁰³

Although USDA's bid to reopen the analysis of Peacekeeper basing modes failed, it was able to affect the pace of rail garrison's development. Douglass and others felt that rail-garrison basing was sufficiently well defined to warrant its immediate entrance into full-scale development and placed words to that effect into the NSDD being drafted to codify the President's upcoming

¹⁰³Sevin, interview, 10 June 1991. This point also was raised by General Casey at an earlier IJRG meeting.

decision.¹⁰⁴ As one former BMO official put it, rail garrison's technology was one to two magnitudes less sophisticated than that of the other basing modes under consideration; "you just lay the missile on its side and put it in a railroad car."¹⁰⁵ By doing so, Douglass also sought to avoid an additional review of the program, during which members of the JRMB and others might try to tamper with it.¹⁰⁶ Moreover, rail garrison's supporters wanted to maximize the weapon system's political support by moving toward procurement as quickly as possible.¹⁰⁷

Rail garrison's opponents, on the other hand, argued that the basing mode had not been studied as thoroughly as the others being considered for the Peacekeeper. An unpublished report by the OSD Technical Review Group illustrates this point of view. Created to ensure that the Air Force's data and analysis were adequate to support a JRMB decision on ICBM modernization, the review group concluded that rail garrison's dependence on strategic warning was a radical departure from previous

¹⁰⁴Douglass, interview, 19 July 1991.

¹⁰⁵William L. Capella, telephone interview by author, 28 June 1991, Written notes, the Air Force Inspection and Safety Center, Norton AFB, CA. Capella was Deputy Program Director for Peacekeeper rail garrison at BMO.

¹⁰⁶Douglass, interview, 19 July 1991.

¹⁰⁷McMains, interview, 3 July 1991.

basing recommendations and therefore required more technical and policy analysis than it had thus far received.¹⁰⁸ As USDA's Director of Offensive and Space Systems put it, "the Air Force hadn't answered all the questions [pertaining to rail-garrison basing]. It hadn't even asked them all."¹⁰⁹ Ultimately, USDA prevailed and the NSDD was amended to direct development rather than full-scale development of rail-garrison basing for the Peacekeeper.¹¹⁰

In contrast with USDA, USDP first sought to defeat Peacekeeper rail garrison by advocating the purchase of additional ballistic-missile submarines and then by decoupling it from the SICBM. In December 1986, just days before the President was to make his decision, Secretary Weinberger was briefed by General Welch and Under Secretary Ikle. Welch, briefing first, made his case for an integrated ICBM modernization program consisting of rail-garrison basing for the Peacekeeper

¹⁰⁸The OSD Technical Review Group's 2 December 1986 report was briefed within DOD but not released externally because its findings and recommendations were contrary to what OSD wanted to hear (Hicks, interview, 5 June 1991). The review group concluded that the SICBM on hard mobile launchers and the Peacekeeper in superhard silos were ready for full-scale development.

¹⁰⁹Sevin, interview, 10 June 1991.

¹¹⁰Ibid.

and full-scale development of the single-warhead SICBM.¹¹¹ For his part, Ikle argued against mobile ICBMs and for the purchase of additional Trident submarines. Before he could finish, however, Welch turned off Ikle's briefing slide, commenting that it was difficult to read and therefore distracting. Weinberger never asked that the slide be turned back on, leading some in attendance to surmise that the Defense Secretary, while appreciative of the importance of submarines to deterrence, continued to support the deployment of 100 Peacekeepers.¹¹²

Whatever his reasoning, Weinberger eventually endorsed rail-garrison basing, reportedly because the other options had been "exhausted by opposition."¹¹³ He also agreed, for a time, with the Air Force's assessment that continued development of the SICBM also was necessary if more than 50 Peacekeepers were ever to be

¹¹¹Notes from the 17 November IJRG meeting indicate that while the Air Force considered superhard silos the best Peacekeeper basing option militarily, and a MIRVed SICBM would have been less expensive than the single-warhead option, the program Welch recommended was judged to be the best combination politically.

¹¹²May, interview, 25 April 1991 and McMullen, interview 9 May 1991.

¹¹³Caspar A. Weinberger, telephone interview by author, 26 June 1991, Written notes, Rogers and Wells, Washington, D.C.

deployed.¹¹⁴ Ikle and Perle, however, subsequently convinced Weinberger to reverse his position on the SICBM by arguing that its development would not significantly strengthen the Congress' support for additional Peacekeepers. Peacekeeper rail garrison would have to stand alone, if at all. If the prevailing wisdom was correct, however, and the two ICBMs were inextricably linked, this decision would have resulted in the demise of both programs, an outcome that would not have displeased USDP's leadership.

Selecting a Basing Mode for the Peacekeeper

Although the IJRG was created, in part, to oversee the process leading to the Joint Requirements Management Board recommending a follow-on basing mode for the Peacekeeper, the JRMB never did so. A December 1986 meeting scheduled for that purpose was canceled.¹¹⁵ In fact, the JRMB and its predecessor, the Defense Systems Acquisition Review Council (DSARC), didn't make any recommendations regarding either the Peacekeeper or the SICBM during Weinberger's tenure. Rather, these

¹¹⁴Ibid. and Douglass, interview, 19 July 1991.

¹¹⁵Although the JRMB never recommended a follow-on basing mode for the Peacekeeper, it was periodically briefed on the IJRG's progress and formally reduced the number of basing options under consideration in August 1986.

decisions were made at the highest levels of the government.¹¹⁶

On 16 December 1986, an expanded NSC meeting was held in the Cabinet Room of the White House to select a follow-on basing mode for the Peacekeeper and determine the SICBM's future. In attendance were the four statutory NSC members: President Reagan, Vice President Bush, Secretary of Defense Weinberger, and Secretary of State Shultz. Among the others attending were Elizabeth Dole, the Secretary of Transportation; Edwin Meese, the Attorney General; Kenneth Adelman, director of the Arms Control and Disarmament Agency; Marine Corps Commandant Gen. P.X. Kelley, representing the JCS chairman; General Welch; Brigadier General May; and Colonel Douglass.¹¹⁷

Briefing for the Air Force, General Welch

¹¹⁶Prior to the Reagan administration, the DSARC stated its preference for the trench concept (9 March 1976), recommended full-scale development of vertical multiple protective shelters (5 December 1978), and advised against air-mobile basing (31 March 1979). See SAC, Missile Chronology, 63 and 67. The next recommendation concerning ICBM modernization, however, didn't occur until after Weinberger's departure from the Pentagon. On 13 May 1988, the Defense Acquisition Board, the panel that replaced the JRMB, recommended that rail-garrison basing proceed to full-scale development (Dan Dunmire, interview by author, 19 July 1991, Written notes, the Pentagon, Washington D.C.).

¹¹⁷Unless otherwise noted, the discussion of the NSC meeting that follows was taken from Welch, interview, 24 June 1991; May, interview, 25 April 1991; and Douglass, interview, 19 July 1991.

recommended, as he had to Secretary Weinberger several days earlier, that the President authorize development of rail-garrison basing for the Peacekeeper and proceed with full-scale development of the single-warhead SICBM. Then, proceeding around the table from the President's left to his right, the other participants' views were solicited. During the exchange that followed, little opposition was expressed to the Air Force's proposal.

Seated to Reagan's immediate left, Weinberger was the first to comment. Although he recommended that only rail-garrison basing be developed, he hedged his advice by acknowledging Peacekeeper's linkage to the SICBM. He did not argue more strongly against the small missile, Weinberger recalled, because he felt it never would be deployed. "It would fall victim to declining defense budgets," he predicted.¹¹⁸

For her part, Secretary Dole had little reason to oppose Peacekeeper rail garrison given the railroad industry's support for it.¹¹⁹ Although the railroads

¹¹⁸Weinberger, interview, 26 June 1991.

¹¹⁹Although there are 18 Class I railroads and 500 smaller ones, there was no vocal dissent from any of them. It didn't hurt, however, that the trains were to be garrisoned. Dr. Boone recalled that "the sense of relief was palpable" when the railroads learned that the missiles would not be continuously mobile (James W. Boone, interview by author, 16 July 1991, Written notes, the Federal Railroad Administration, Washington, D.C.).

stood to make some money from the weapon system, their incentive was largely nonmonetary. As the FRA's Dr. Boone pointed out, little money would have been spent upgrading track; the idea, after all, was to keep the basing mode's cost low by using existing railroad infrastructure. Likewise, since the Peacekeeper trains rarely would disperse, little revenue would have been generated from the Air Force's use of that infrastructure. "The major benefit," Boone recounted, "was a nonmonetary one. It would raise the consciousness of the military and the public to the capabilities of privately-owned railroads."¹²⁰

Seated to the President's immediate right, Secretary Shultz was last to comment. With the 1982 dense-pack fiasco apparently in mind (recall that only the Air Force Chief of Staff supported that basing mode), Schultz, a former Marine, asked General Kelley to stand up, look the President in the eye, and swear on his Marine honor that the other chiefs supported the Air Force's plans for ICBM modernization. Kelley did so.

Although the JCS supported the Air Force's recommendation, convincing them to back rail-garrison basing for the Peacekeeper and full-scale development of

¹²⁰Ibid. Boone estimated that the railroads stood to make \$20-30 million over a five-year period.

the SICBM was, as Welch described it, "a tough sales job."¹²¹ The Army was concerned that big-ticket strategic systems would affect their share of the defense budget,¹²² while the Navy felt that "the U.S. already had a mobile missile--the SLBM."¹²³ Moreover, none of the joint chiefs saw a military need for both weapon systems. Still, Admiral Crowe and the others "reluctantly agreed" to support both programs. They did so because they considered their linkage a political necessity if further ICBM modernization was to occur. They also were convinced that both ICBMs never would be deployed. One eventually would fall by the wayside.¹²⁴

During the NSC meeting, President Reagan said little, although he did ask several questions, including one that was left with him by Colonel Douglass.¹²⁵

¹²¹Welch, interview, 24 June 1991.

¹²²Ibid.

¹²³Crowe, interview, 5 August 1991.

¹²⁴Ibid. Although there was general agreement that both missiles would not be deployed, there also was some debate about which would prevail. Welch, for example, thought that the SICBM eventually would be canceled (Welch, interview, 24 June 1991). Crowe, however, felt that arms control and military requirements might result in the SICBM carrying the day (Crowe, interview, 5 August 1991).

¹²⁵Douglass and McMullen put together the President's briefing materials for the NSC meeting (Douglass, interview, 19 July 1991).

Addressing General Welch, the President asked if 100 Peacekeepers could be deployed without continuing the SICBM's development. The general, in response, indicated that there was no chance whatsoever.

As was the norm during the Reagan administration, the 16 December NSC meeting adjourned without a decision from the President. Three days later, however, it was announced that:

The President decided . . . to proceed with full-scale development of the small intercontinental ballistic missile and to begin development of a mobile, rail garrison basing mode for Peacekeeper. These two programs are an integrated package to modernize ICBM's.¹²⁶

Peacekeeper rail garrison would be based at a number of military installations "throughout the continental United States" including F.E. Warren AFB, home to the silo-based Peacekeeper force. The SICBM would be carried on hard mobile launchers and deployed at Minuteman facilities and/or government reservations in the nation's southwest. "The total quantity of systems to be produced and the extent to which the missiles are to be deployed," the announcement continued, "will be dependent upon the size of the Soviet threat and progress reached on arms control

¹²⁶Ronald Reagan, "Intercontinental Ballistic Missile Modernization," Weekly Compilation of Presidential Documents 22, no. 51 (22 December 1986): 1658.

agreements."¹²⁷ The President's decision was codified by NSDD-252 on 24 December 1986.

¹²⁷Ibid.

CHAPTER 4

PEACEKEEPER RAIL GARRISON DURING THE REAGAN ADMINISTRATION

Rail garrison basing for the MX, while possessing attractive features, is not a substitute for the small mobile ICBM, in as much as it requires significant warning time to achieve survivability.

Brent Scowcroft to Sam Nunn

On 19 December 1986, slightly more than a year after the Nunn-Warner Amendment became law as part of the FY 1986 defense authorization act, the Reagan administration announced "an integrated package to modernize ICBMs" that included the development of rail-garrison basing for the Peacekeeper and full-scale development of the SICBM. Although the number of missiles to be deployed was left unstated, fielding 100 Peacekeepers clearly remained the administration's central objective, as evidenced by General May's announcement the very next day that the Pentagon planned to request 50 additional Peacekeepers in its FY 1990 budget.¹

¹Molly Moore and R. Jeffrey Smith, "Reagan Favors Midgetman," Washington Post, 20 December 1986, A2. Also see Department of Defense, Annual Report to the Congress, Fiscal Year 1988 (Washington, D.C.: GPO, 12 January

While Chapter 3 discussed events leading up to rail garrison's selection as the latest Peacekeeper basing mode, this and the next chapter focus on the politics that followed that decision: Chapter 4 examines Peacekeeper rail garrison during the remaining years of the Reagan administration, while Chapter 5 addresses the weapon system's fortunes during the Bush years. First, however, it would be useful to outline the key arguments being made for and against rail-garrison basing as the debate widened following the administration's 19 December announcement.

Debating Peacekeeper Rail Garrison

As the debate regarding rail garrison broadened to include members of the Congress and others, its focus remained largely on those issues identified within the executive branch during the summer and fall of 1986. They were Peacekeeper rail garrison's survivability, effect on crisis stability, and cost relative to the SICBM. In addition, but to a lesser extent, certain public interface and security concerns also were expressed.

1987), 206. It states that DOD "hope[s] to begin deploying missiles in the new basing mode in 1991 and to have all the second 50 Peacekeepers deployed by December 1993."

Survivability

As John Toomay noted, weapon systems survive through concealment, mobility, hardening, defense, or a combination of these means.² While ICBMs traditionally have relied upon hardening for their survival, improvements in missile accuracy required that other methods be used as well. To that end, the rail-garrison concept employed mobility and concealment. However, because the Peacekeeper trains would have been garrisoned on a day-to-day basis, their ability to survive by moving and hiding would have depended upon adequate dispersal prior to an attack. And it was this dependency, Rep. Norm Dicks (D-WA) pointed out, that constituted "the crux of the [rail-garrison] debate."³

As the previous chapter illustrated, rail garrison's supporters argued that a bolt-from-the-blue attack is irrational. General Welch, for example, noted that approximately one-third of the bomber force and half of the nation's ballistic-missile submarines would have survived such an assault. "To make a decision to attack

²John C. Toomay, "Strategic Forces Rationale--A Lost Discipline?," International Security 12, no. 2 (Fall 1987): 196..

³Congress, House, National Defense Authorization Act, Fiscal Year 1989, 100th Cong., 2d sess., H.R. 4264, Congressional Record, vol. 134, no. 62, daily ed. (5 May 1988), H2994.

under those circumstances," Welch concluded, "is an irrational decision."⁴ Rail garrison's supporters also asserted that the U.S. would have adequate warning of Soviet preparations for war and would use that warning to increase the survivability of its nuclear forces. Air Force estimates, for instance, indicated that 25 Peacekeeper trains travelling at 30 miles per hour from seven garrisons would have generated 20,000 route miles of track in four hours, thereby requiring a barrage attack by 300 of the Soviet Union's 308 ten-warhead SS-18s to destroy the entire rail-garrison force.⁵ Moreover, as the amount of dispersal time increased, so would the price required to successfully attack the

⁴Congress, House, Committee on Armed Services, Defense Policy Panel, National Security Policy, 100th Cong., 1st sess., 13 March 1987, 147.

⁵Cited in Barry E. Fridling and John R. Harvey, "On the Wrong Track? An Assessment of MX Rail Garrison Basing," International Security 13, no. 3 (Winter 1988/89): 130-132. This "price to attack" assumes a perfectly accurate barrage attack by SS-18s, each carrying ten 500 kiloton warheads, targeted against Peacekeeper trains "hardened" to withstand five pounds per square inch of blast overpressure (Ibid., 131). Similar estimates can be found in the testimony of Dr. Larry Woodruff, Deputy Under Secretary of Defense for Strategic and Theater Nuclear Forces, (Congress, House, Committee on Armed Services, National Defense Authorization Act for Fiscal Years 1988/1989--H.R. 1748, Title II, 100th Cong., 1st sess., 10 March 1987, 203) and General May (Congress, House, Committee on Armed Services, National Defense Authorization Act for Fiscal Years 1988/1989--H.R. 1748, Title I, 100th Cong., 1st sess., 12 March 1987, 341).

system. After 12 hours, it would have taken 10,000 SS-18 warheads to destroy just 500 Peacekeeper RVs.⁶

Although rail garrison's detractors generally agreed that a bolt-out-of-the-blue attack is not the most likely scenario for nuclear war, they also insisted that it not be dismissed. The objective of ICBM modernization is not to "make the probability of a Soviet attack low," Toomay wrote, but to make it "vanishingly small."⁷ Moreover, even if strategic warning was available, decisionmakers might not react to it in time to avert disaster. Richard Betts, for example, argued that surprise attacks occur not because of an absence of warning but because of "the unwillingness of political leaders to believe intelligence or to treat it with sufficient dispatch."⁸ As Robert Gray pointed out, in comparison with tactical warning's relative clarity, "strategic warning provides

⁶Cited in Congress, House, Committee on Armed Services, Subcommittee on Research and Development and Subcommittee on Procurement and Military Nuclear Systems, MX Rail Garrison and Small ICBM: A Program Review, 100th Cong., 1st sess., 21 March 1988, 13.

⁷Toomay, "Strategic Forces Rationale," 195.

⁸Richard K. Betts, Surprise Attack: Lessons for Defense Planning (Washington, D.C.: Brookings Institution, 1982), 4 and 18.

ample room for discussion, debate, and delay."⁹ Therefore, dispersal of the Peacekeeper trains could have been postponed by disagreements over the meaning of warning data, a desire for more information before taking action, a psychological urge to "wish away" discomfoting information, or efforts aimed at avoiding a situation where events spiral out of control and into a war that nobody wants.

In addition, some cautioned that deploying Peacekeeper in the rail-garrison mode would motivate the Soviets to "work out schemes for denying [the U.S.] strategic warning and, particularly, for cheaply incapacitating any systems that require it to be effective."¹⁰ Scowcroft, Deutch, and Woolsey, for example, wrote that "history has shown that when a nation designs its key military forces so that they will survive only when strategic warning is perceived and acted upon, it risks tempting an enemy to exploit the vulnerability

⁹Robert C. Gray, "The Bush Administration and Mobile ICBM: A Framework for Evaluation," Survival 31, no. 5 (September/October 1989): 421. On the ambiguity of strategic warning, also see Fridling and Harvey, "On the Wrong Track?," 122.

¹⁰Toomay, "Strategic Forces Rationale," 201.

at some point and attack."¹¹

Effect on Crisis Stability

Crisis stability can be described as a condition where neither party to a dispute concludes that it would be better off attacking the other first. Or, as Charles Hermann more precisely defined it, it is "mutual confidence that both sides continue to experience very strong disincentives for initiating a major military attack in a sudden situation of limited duration involving grave threats to their respective primary interests."¹² As these definitions make clear, stability and survivability are interrelated. If both sides' weapons are survivable, neither can gain an advantage over the other by striking first. And this, as the Scowcroft Commission pointed out, should be the goal of ICBM modernization and arms control--"permitting the U.S. and encouraging the Soviets to move toward more stable ICBM deployments over time in a way that is consistent with arms control agreements having the objective of

¹¹Brent Scowcroft, John Deutch, and R. James Woolsey, "Come and Get Us: Reagan's Latest Nuclear Strategy," New Republic, 18 April 1988, 16. Italics in original. Also see Fridling and Harvey, "On the Wrong Track?," 123.

¹²Charles F. Hermann, "Crisis Stability in Soviet-American Strategic Relations," in American Defense Annual: 1988-1989, ed. Joseph Kruzel (Lexington, MA: Lexington Books, 1988), 213.

reducing the risk of war."¹³

While there was general agreement that crisis stability would be enhanced if both superpowers deployed survivable ICBMs, rail garrison's opponents claimed that the weapon system's reliance on strategic warning and a decision to disperse would be destabilizing in several respects. First of all, they noted that garrisons containing as many as 80 warheads would be tempting targets.¹⁴ Unlike silo-based ICBMs:

trains deployed in-garrison are concentrated at a small number of bases (fewer than ten) that are not hardened to nuclear blast. Thus, large numbers of accurate ICBM RVs would not be necessary. One or two submarine-launched ballistic missile (SLBM) RVs targeted on each garrison would be sufficient to destroy all of the trains.¹⁵

Second, because the Soviet Union's arsenal of SLBMs was capable of destroying the Peacekeeper garrisons and U.S. bomber bases, the synergy that existed between the bomber and ICBM legs of the triad would have been threatened. As the Scowcroft Commission noted, the United States' bombers and silo-based ICBMs "are more

¹³The President's Commission on Strategic Forces, Report of the President's Commission on Strategic Forces (Washington, D.C.: GPO, April 1983), 14-15.

¹⁴See, for example, Fridling and Harvey, "On the Wrong Track?," 136.

¹⁵Ibid., 127.

survivable together . . . than either would be alone."¹⁶

If Soviet war planners should decide to attack our bomber and submarine bases and our ICBM silos with simultaneous detonations . . . then a very high proportion of our alert bombers would have escaped before their bases were struck. . . . If the Soviets, on the other hand, chose rather to launch their ICBM and SLBM attacks at the same moment . . . there would be a period of over a quarter of an hour after nuclear detonations had occurred on U.S. bomber bases but before our ICBMs had been struck.¹⁷

If, however, both legs of the triad had a common "failure mode"--that is, if both could be destroyed by SLBMs--this synergy would have ceased to exist.¹⁸

A third criticism concerned the weapon system's reliance on launch under attack (LUA) when garrisoned. "If the country got into the position where it had a bolt out of the blue, the [rail-garrison] ICBM . . . would be fired from the garrison," General Chain noted.¹⁹ Rail garrison's critics, however, felt that "such a posture

¹⁶President's Commission, Report of the President's Commission, 8.

¹⁷Ibid., 7-8. Italics in original.

¹⁸See, for example, Brent Scowcroft, "ICBM Modernization and the START Regime," address before the Institute for Foreign Policy Analysis, 12 May 1988.

¹⁹Congress, Senate, Committee on Appropriations, Subcommittee on Defense, Department of Defense Appropriations, Fiscal Year 1988, pt. 1, 100th Cong., 1st sess., 18 February 1987, 209.

would seriously risk nuclear war by accident."²⁰ Moreover, LUA, a questionable and destabilizing proposition for silo-based ICBMs, would be even more difficult for garrisoned missiles to execute. Short SLBM flight times--less than half that of ICBMs--and even shorter flight times for depressed trajectory launches would reduce significantly the time available for attack detection, confirmation, assessment, decisionmaking, and retaliation. "Given these considerations," Fridling and Harvey concluded, "even under a set of optimistic assumptions it is unreasonable to expect that a retaliatory LUA could be executed before the destruction of the garrisons."²¹ Moreover, even if the missiles could be launched on such short notice, their launch corridors would be few, narrow, and predictable compared to ICBMs housed in geographically dispersed silos. Therefore, the "detonation of Soviet RVs at appropriate altitudes and ranges north of the garrison could destroy any missiles launched prior to the destruction of the garrison."²²

A fourth oft-voiced criticism was that dispersing

²⁰See, for example, Scowcroft, et al., "Come and Get Us," 18.

²¹Fridling and Harvey, "On the Wrong Track?," 128.

²²Ibid.

the trains during a crisis would itself be destabilizing. During hearings on the FY 1988 defense appropriations bill, for example, Sen. Thad Cochran (R-MS) asked General Chain "if the rail garrison basing mode would not be an added provocation if . . . [dispersal] was perceived by the Soviet Union to be just the first in a series of actions that would inevitably lead to the launching of those missiles."²³ Would the Soviets, in other words, choose to destroy Peacekeeper rail garrison before it could become survivable? Robert Zirkle, an arms control analyst with the Union of Concerned Scientists, likewise questioned whether "such an activity could destabilize the situation and increase the risk of nuclear war."²⁴

Finally, concerns were expressed about placing 500 additional warheads atop 50 garrisoned ICBMs given the limits and sublimits likely to be included in the START Treaty. At the time, the draft treaty limited the total number of strategic nuclear delivery vehicles--deployed ICBMs, SLBMs, and heavy bombers--to 1,600 and the number of accountable warheads to 6,000. In addition, no more than 4,900 warheads could be deployed on ballistic

²³SADS, DOD Appropriations, FY88, pt. 1, 209.

²⁴Robert A. Zirkle "Rail-Garrison MX...No Way to Run a Railroad," Arms Control Today 17, no. 8 (October 1987): 19.

missiles.²⁵ Later, the number of mobile ICBM warheads was limited to 1,100.²⁶

While deploying 50 or even 100 Peacekeepers in the rail-garrison mode would not have violated any of START's limits or sublimits, the basing mode's critics argued that placing so many warheads on so few vulnerable ICBMs would be destabilizing. As Sen. Paul Simon (D-IL) put it:

If we would go ahead on START, that would mean, if ultimately we put all 100 MX missiles in these rail garrisons, two-thirds of our [ICBM] warheads would be in this very vulnerable mode. I can't believe that either from a military point of view or any other point of view we would want to be considering that.²⁷

For example, if the U.S. maintained 18 Trident submarines carrying a total of 3,456 warheads in its post-START arsenal, only 1,444 warheads could be deployed

²⁵By the end of the December 1987 Washington Summit between President Reagan and General Secretary Gorbachev, these limits and sublimits had been agreed to by both parties. See U.S. Arms Control and Disarmament Agency, Office of Public Affairs, "The Strategic Arms Reduction Treaty: Chronology," fact sheet, 29 July 1991, 9-10.

²⁶This sublimit was not agreed to until May 1990 (Ibid., 15). All of the aforementioned limits and sublimits were included in the START agreement signed by Presidents Bush and Gorbachev in Moscow on 31 July 1991.

²⁷Congress, Senate, National Defense Authorization Act, 100th Cong., 2d sess., S. 2355, Congressional Record, vol. 134, no. 66, daily ed. (12 May 1988), S5543.

on ICBMs.²⁸ Furthermore, those warheads would have been carried by as few as 248 missiles--100 Peacekeepers and 148 Minuteman IIIs--although as many as 544 ICBMs could have been deployed if single-warhead missiles were fielded in addition to 100 Peacekeepers.²⁹ In contrast, if the Soviet Union chose to keep 1,896 of its ballistic-missile warheads on SLBMs, it still would have had more than 3,000 of its most accurate ICBM warheads with which to threaten this significantly smaller U.S. ICBM force.³⁰ As Norm Dicks cautioned during debate in the House of Representatives, "if we are not careful, we could wind up with a situation where the temptation to strike first in a crisis is increased, rather than reduced after a START

²⁸During a speech on 2 August 1990, President Bush indicated that the U.S. would deploy just 18 Trident submarines (George Bush, "Remarks at the Aspen Institute Symposium in Aspen, Colorado," Weekly Compilation of Presidential Documents 26, no. 31 [6 August 1990]: 1191).

²⁹More recent testimony indicates that the U.S. will retain 550 silos--50 Peacekeeper and 500 Minuteman III--out of the previous force of 1000. See, for example, the testimony of Gen. George Lee Butler, Chain's successor as CINCSAC, in Congress, Senate, Committee on Armed Services, Department of Defense Authorization for Appropriations for Fiscal Years 1992 and 1993, pt. 1, 102d Cong., 1st sess., 21 February 1991, 748.

³⁰These projections were used in Gray, "The Bush Administration," 418 and Hans Binnendijk, "START: A Preliminary Assessment," Washington Quarterly 11, no. 4 (Autumn 1988): 15. Slightly different numbers appeared in Walter B. Slocombe, "Force Posture Consequences of the START Treaty," Survival 30, no. 5 (September/October 1988): 406.

agreement."³¹

Because rail garrison's supporters argued that a bolt-from-the-blue attack is irrational and strategic warning would be available and reacted to in a timely manner, they generally dismissed these criticisms. Peacekeeper rail garrison, they asserted, would be survivable when survivability is needed most, during times of national emergency. Therefore, its deployment would be stabilizing. Likewise, they argued that dispersing the trains would not destabilize a crisis. General Welch, for example, noted that both supporters and opponents of rail-garrison basing agreed that increasing a weapon system's survivability increases stability. Therefore, he concluded, "it is illogical . . . to argue that moving missiles out of garrisons . . . is destabilizing."³² Moreover, dispersing the trains would have been just one part of a larger effort that also included generating additional bombers and submarines to alert status. As Chain put it in response to Cochran's query:

If [Peacekeeper rail garrison] were our only weapons system, then the logic that you laid out would be a lot more valid. But

³¹House, Congressional Record, 5 May 1988, H2994.

³²Larry D. Welch, "The MX: A Missile For All Reasons," New York Times, 20 September 1988, A29.

because we have all of these other weapons systems that would also be generated, I do not think deploying the Peacekeeper out of the garrison would be provocative at all. I think it would be just the opposite. I think it would help stabilize what obviously would have to be at that time a very destabilized situation.³³

Although critical of other aspects of the rail-garrison concept, Fridling and Harvey agreed with this assessment and concluded that dispersing the Peacekeeper trains "should not generate Soviet fears of an imminent U.S. attack" since doing so would not increase the number of Peacekeeper warheads on alert.³⁴ In fact, as Peter Zimmerman pointed out, the missiles would have been off alert while in transit. Therefore, fewer warheads would have been available for use during the first few hours of dispersal than had been the case when the trains were garrisoned.³⁵

Cost

Although it had been an issue previously, the importance of Peacekeeper rail garrison's cost relative to the SICBM's increased dramatically by the end of 1987.

³³SADS, DOD Appropriations, FY88, pt. 1, 210.

³⁴Fridling and Harvey, "On the Wrong Track?," 125.

³⁵Peter D. Zimmerman, "Rail Garrison MX," in The Future of Land-Based Strategic Missiles, ed. Barbara G. Levi, Mark Sakitt, and Art Hobson (New York: American Institute of Physics, 1989), 228.

Following the stock market's collapse in October, a budget agreement between the executive and legislative branches set the FY 1989 defense budget at \$290.8 billion in new budget authority, more than \$32 billion less than the administration requested in January.³⁶ This translated into a \$10.5 billion reduction to the Air Force's budget for that year. The Air Force also expected to lose almost \$100 billion in projected funding for fiscal years 1990-1993.³⁷

Given this situation, the Pentagon sought to terminate the SICBM program, arguing that its "relatively high cost" made it unaffordable "in the present budget environment."³⁸ As General Welch noted, at \$38 billion the SICBM's life-cycle cost was almost three times that of Peacekeeper rail garrison's. Moreover, while it would have cost less than \$9 billion to complete the rail-garrison program, an additional \$27 billion was required to deploy the SICBM.³⁹

³⁶Department of Defense, Annual Report to the Congress, Fiscal Year 1989 (Washington, D.C.: GPO, 18 February 1988), 125.

³⁷Larry D. Welch, address before the Institute for Foreign Policy Analysis, 24 March 1988.

³⁸Larry D. Welch to Sam Nunn, 21 April 1988. Printed in Senate, Congressional Record, 12 May 1988, S5545-S5546.

³⁹Ibid.

Proponents of the small missile fought back by noting that their system's cost had declined since 1987.⁴⁰ That year, Dr. Larry Woodruff, Deputy Under Secretary of Defense for Strategic and Theater Nuclear Forces, estimated the SICBM's life-cycle cost to be between \$44 billion and \$48 billion in FY 1988 dollars.⁴¹ By the spring of 1988, however, estimates ranged from \$31.5 billion to \$39.5 billion.⁴² Moreover, the system's supporters argued that the small missile's cost could be reduced even further by MIRVing the missile or deploying all or part of the force in silos.⁴³

The small missile's supporters also noted that the SICBM and Peacekeeper rail garrison programs were not directly comparable since the latter did not include the cost of missiles for deployment or flight testing. Rather, these costs were included in the silo-based

⁴⁰See, for example, Les Aspin, "Midgetman Costs Fall While MX Costs Rise," news release, 5 May 1988. This document was accompanied by "Comparison of Costs: Midgetman, Rail-MX, and Other Strategic Systems," a fact sheet presented by Aspin to a meeting of the Institute for Foreign Policy Analysis that same day. The letter and part of the fact sheet are printed in Senate, Congressional Record, 12 May 1988, S5547.

⁴¹HASC, Defense Authorization Act, FY88/89, Title II, 203.

⁴²Aspin, "Comparison of Costs," 1.

⁴³Ibid. and HASC, Program Review, 10-11.

Peacekeeper's budget.⁴⁴ According to Les Aspin's calculations, adding 50 operational ICBMs and half of the Peacekeeper program's test missiles to the rail-garrison program would have increased its cost to \$20.8 billion.⁴⁵ And this, Aspin concluded, made 250 two-warhead SICBMs--estimated by the Air Force to cost \$25.4 billion--competitive with 50 Peacekeepers in the rail-garrison mode.⁴⁶ It should be noted, however, that rail garrison's cost remained well below existing estimates for 500 single-warhead SICBMs, leading Alabama's Bill Dickinson, the House Armed Services Committee's ranking Republican, to charge that the SICBM's supporters were "cooking the books" by creating "an entirely new Midgetman variant."⁴⁷

Finally, rail garrison's opponents argued that ICBMs should be compared on a cost-per-survivable-warhead basis rather than comparing their cost per deployed RV. Using

⁴⁴Aspin, "Midgetman Costs Fall." The GAO later reached the same conclusion. See General Accounting Office, ICBM Modernization: Status of the Peacekeeper Rail Garrison System (Washington, D.C.: General Accounting Office, January 1989), 8.

⁴⁵Aspin, "Comparison of Costs," 2.

⁴⁶Aspin, "Midgetman Costs Fall."

⁴⁷William L. Dickinson, "Dickinson Says Midgetman Costs Four Times More Than Rail Garrison MX," news release, 23 May 1988.

the former, they asserted, would demonstrate the SICBM's cost-effectiveness, at least during the first several hours of dispersal. For example, during hearings before the Subcommittee on Strategic and Theater Nuclear Forces, Senator Gore estimated that the Soviet Union's entire SS-18 arsenal would be required to destroy the SICBM force after just 15 minutes of dispersal. Peacekeeper rail garrison, on the other hand, would require hours to exact the same price.⁴⁸ "While the economics of acquisition cost may look good for the MX," Representative Dicks observed, "the economics for survivable warheads do not."⁴⁹

Public Interface

As Chapter 2 illustrated, the potential effect of MPS basing on the Great Basin region of Nevada and Utah led to a large and vocal coalition against that basing mode and contributed to its cancellation. In light of this experience, the proposals that followed--superhardened silos, closely-spaced basing, deployment in modified Minuteman silos, and, finally, the rail-garrison

⁴⁸Cited in Willie Curtis, "The Case for Mobile Missiles," Armed Forces and Society 15, no. 4 (Summer 1989): 602-603.

⁴⁹House, Congressional Record, 5 May 1988, H2995. Also see Albert Gore, Jr., "We Need Midgetman," Washington Post, 22 April 1986, A14.

concept--sought to minimize contact between the Peacekeeper and the public.

As an early Air Force document describing Peacekeeper rail garrison noted, the trains would have been dispersed only during national emergencies like the Cuban Missile Crisis, and practice dispersals would have been conducted by trains carrying "inert mass simulators" rather than operational missiles with nuclear warheads.⁵⁰ Therefore, the weapon system's public interface would have more closely resembled that of silo-based ICBMs, bombers on SAC bases, and ballistic-missile submarines in port than rail-mobile or MPS-style systems. Furthermore, rail garrison's use of existing Air Force bases and railroad infrastructure would have greatly reduced the amount of construction required, thereby minimizing its effect on the environment, local socioeconomic conditions, and natural resources--all major points of contention with MPS basing.⁵¹

Despite the weapon system's minimal contact with the civilian populace, however, public interface--especially concerns about the safety of deploying nuclear weapons on

⁵⁰Air Force, Office of the Secretary of the Air Force, Strategic Division, The Peacekeeper in Rail Garrison Concept (Washington, D.C.: Office of the Secretary of the Air Force, April 1987), 8.

⁵¹Ibid., 9.

commercial railways--still was an issue. Robert Zirkle, for example, wrote that:

Accidents are not only the hardest threat to protect against, but also the most likely to occur. In the early hours of deployment, MX trains would be speeding along the railways, requiring close coordination with civilian commercial and passenger traffic. Afterwards, they would frequently move along the rails from one pre-surveyed launch site to the next, creating a continual risk of derailment or other accidents as long as the crisis lasts. The expected increase in civilian and military rail traffic during a crisis would increase this problem. Any accidents--including those with trucks or cars--could lead to the destruction of a portion of the U.S. retaliatory capability, and could expose the train's dangerous cargo to the environment, with the potential for plutonium or uranium contamination in populated areas.⁵²

Members of the Congress expressed similar concerns.⁵³

Suspensions like these led some to suggest that "there could . . . be a strong disincentive to disperse the trains, even in a crisis, precisely because of the public safety outcry that could result."⁵⁴ Senator McClure (R-ID), for one, predicted that there would not

⁵²Zirkle, "Rail-Garrison MX," 18-19.

⁵³See, for example, Dennis Hertel's comments in Congress, House, National Defense Authorization Act for Fiscal Year 1988, 100th Cong., 1st sess., H.R. 1748, Congressional Record, vol. 133, no. 77, daily ed. (13 May 1987), H3519 and House, Congressional Record, 5 May 1988, H3011.

⁵⁴Fridling and Harvey, "On the Wrong Track?," 124.

be "overwhelming or unanimous support for moving those trains out of their bases and putting them out on the rails,"⁵⁵ while a HASC report claimed that the Air Force had given "too little weight" to the public's potential opposition to rail-garrison basing. As the committee put it:

The Air Force assumption is that by moving the trains off military bases only in time of crisis the adverse public reaction to previous rail basing schemes will be reversed. No evidence has been offered to support this assumption.⁵⁶

Naturally, rail garrison's supporters challenged these assertions. The Air Force, for example, defended the railroads' recent safety record by noting that they made capital investments of more than \$4 billion in 1985 alone, including "almost \$3.5 billion on roadway and structures."⁵⁷ Similarly, a trade journal reported that the railroads spent record sums upgrading track and equipment since their deregulation in 1980 and rail safety had improved steadily.⁵⁸ "By any measure,"

⁵⁵SADS, DOD Appropriations, FY88, pt. 1, 215-216.

⁵⁶HASC, Program Review, 15.

⁵⁷Congress, House, Committee on Appropriations, Subcommittee on the Department of Defense, Department of Defense Appropriations for 1988, pt. 6, 100th Cong., 1st sess., 27 April 1987, 723.

⁵⁸Robert Roberts, "Getting Safer in the '80s," Modern Railroads 42, no. 10 (October 1987): 33.

Transportation Secretary Elizabeth Dole was quoted as saying, "1986 was the safest year in the history of the railroad industry."⁵⁹

Regarding the public's potential reaction to Peacekeeper trains leaving their garrisons during a crisis, General Chain wrote that "there is every assurance that the American people would be completely supportive."⁶⁰ Fridling and Harvey agreed, stating that the public's reaction, although difficult to predict, "would likely be tolerant of nuclear weapons alerts, as it was during the Cuban missile crisis and the 1973 Arab-Israeli War."⁶¹

Security

In addition to the public interface issue, concerns about rail garrison's security--ranging from demonstrations to commando attacks--also were raised. The HASC, for example, suggested that demonstrations similar to those encountered during the deployment of ground-launched cruise missiles in Western Europe and the Department of Energy's movement of nuclear devices in the

⁵⁹Ibid.

⁶⁰John T. Chain, "Rail Garrison Basing for Peacekeeper," National Defense 72, no. 435 (February 1988): 33.

⁶¹Fridling and Harvey, "On the Wrong Track?," 138.

U.S. also might occur with Peacekeeper rail garrison.⁶² The committee also questioned the Air Force's ability to preserve the trains' location uncertainty.

The trains would be under the direction of the civilian rail transportation system, raising compelling questions. If civilian dispatchers will know the precise location of rail garrison trains under their regional jurisdiction, there is an obvious concern over the ability of an adversary to locate these trains by compromising railroad employees.⁶³

The Union of Concerned Scientists likewise noted that the Peacekeeper trains, although made to look like other rail traffic, might be identified by other signatures--including thermal, chemical, nuclear, and electromagnetic emissions--or their operational characteristics.⁶⁴ Finally, some wondered whether rail garrison's vulnerability to attack by Soviet special operations forces--otherwise known as spetsnaz--had been fully considered.⁶⁵

Although a thoroughgoing security analysis had not

⁶²HASC, Program Review, 15.

⁶³Ibid., 13.

⁶⁴Robert Zirkle, "Survivability of Rail-Garrison MX," 3. This paper accompanied a letter from the UCS's Washington, D.C. director to members of the Congress. See, for example, Charles A. Monfort to Jim Courter, 13 March 1987.

⁶⁵See, for example, Les AuCoin's comments in HADS, DOD Appropriations for 1988, pt. 6, 723.

yet been completed,⁶⁶ rail garrison's supporters felt that these issues were manageable. For example, analysts at the Harris Group, addressing the possibility of demonstrators interfering with rail-garrison operations, concluded that:

The problem has been blown out of proportion by those searching for arguments to kill the system. Demonstrations will not impair the Peacekeeper for long. Most demonstrations will be peaceful, and the militant demonstrators do not have the resources to hinder the rail-based Peacekeeper force effectively.⁶⁷

Others argued that "it would be wrong to underestimate the difficulty that the Soviets would encounter in attempting to keep tabs on the movement of the missile trains."⁶⁸ As General Chain noted during his first appearance before the Congress as CINCSAC, there are 1.5 million railroad cars in the U.S. and approximately 3,000 train movements daily.⁶⁹ The Persian Gulf War later

⁶⁶A "Red Team" consisting of the Scientific Advisory Board and others was directed to define realistic strategic, conventional, unconventional, and reactive threats to the system in time for a full-scale development decision in the spring of 1988.

⁶⁷Armin Reitz and Barry Schneider, "Protestors Cannot Stop Peacekeeper," Defense News, 27 June 1988, 36.

⁶⁸James J. Wirtz, "The MX Rail Garrison: How Not to Pick a Weapon System," Orbis 34, no. 3 (Summer 1990): 364.

⁶⁹Senate, DOD Appropriations, FY88, pt. 1, 180.

demonstrated how difficult mobile missiles are to locate, even when virtually unlimited access to the enemy's air space is available. Finally, the spetsnaz scenario was said to strain credibility, "particularly when any flaw in execution would disclose intentions of the entire attack."⁷⁰ As Marc Berkowitz of the National Institute for Public Policy put it:

Spetsnaz could provide the Soviet Union with the capability to mount unconventional operations against the rail M-X force. The Soviet leadership most likely would discount their use in this capacity as a serious option, however, because of the extreme risk, complexity, and low probability of success of such a special operation. A flaw in the planning or execution of the operation at any level would compromise security, negate the element of surprise crucial for success, and provide US authorities with strategic warning they could use to increase military readiness.⁷¹

Fridling and Harvey shared in this assessment, concluding that attacks against command and control systems "would result in a much higher payoff than attacks on the garrisons."⁷²

⁷⁰Chain, "Rail Garrison Basing," 33.

⁷¹Marc Berkowitz, "A Spetsnaz Threat to Rail-MX?," Armed Forces Journal International (September 1989): 74.

⁷²Fridling and Harvey, "On the Wrong Track?," 132-134.

Peacekeeper Rail Garrison Meets the Congress

When the Reagan administration submitted its latest proposal for ICBM modernization to the Congress as part of its FY 1988 budget request, it encountered a legislature that was seriously divided on the issue. As mentioned above, some of its members were willing to support the deployment of additional Peacekeepers--especially if a survivable basing mode could be found for the missile--while others sought to deMIRV the ICBM force by deploying the SICBM or preferred arms control to further strategic modernization. The first group largely was composed of Republicans. They favored Peacekeeper rail garrison and viewed the SICBM, at best, as the price to be paid for 100 of the ten-warhead missiles. The Democrats, on the other hand, tended to prefer the small missile, although many felt that the nation's nuclear deterrent already was sufficient and only voted for the SICBM--the missile farthest from procurement and, therefore, the lesser of two evils--to forestall the deployment of additional Peacekeepers. As then Rep. Dick Cheney (R-WY) put it, for many the SICBM was "a fig leaf to hide behind to justify opposition to rail garrison."⁷³ None of these factions, however, constituted a majority

⁷³House, Congressional Record, 5 May 1988, H3016.

of legislators. In addition, the Senate generally was more supportive of rail-garrison basing than the House of Representatives.

Given the Congress' lack of consensus regarding ICBM modernization, common wisdom held that both ICBMs would have to be developed if either was ever to be deployed. For example, Albert Gore, a staunch supporter of the SICBM, warned that the small missile's death would signal the demise of rail-garrison basing as well.⁷⁴ Likewise, Bill Dickinson, a key proponent of Peacekeeper rail garrison, noted that an attack on rail-garrison basing would result in retaliation against the SICBM.⁷⁵

Although the Reagan administration's 19 December announcement called for the development of rail-garrison basing for the Peacekeeper and full-scale development of the SICBM, the likelihood of a two-missile compromise was endangered by a number of developments. First of all, both armed services committee chairmen opposed the deployment of more than 50 Peacekeepers, the administration's goal and the main raison d'être for the rail-garrison concept. Nunn, concerned about rail garrison's dependence on strategic warning and its

⁷⁴Albert Gore, Jr., address before the Institute for Foreign Policy Analysis, 25 May 1988.

⁷⁵House, Congressional Record, 13 May 1987, H3521.

potential effect on U.S. strategic doctrine and crisis stability,⁷⁶ refused to commit to the deployment of additional Peacekeepers, although he did indicate a willingness to redeploy the silo-based Peacekeeper force as a complement to the SICBM.⁷⁷ Les Aspin was even more adamant in his opposition. In a letter cosigned by a number of his colleagues, Aspin warned that:

it would be counterproductive for the Administration to ask for additional MXs, and if it does so, we will oppose the request.

This long-running controversy has finally been put to rest. We strongly urge you not to attempt to revisit the issue.⁷⁸

Moreover, his flexibility was constrained following his temporary ouster as chairman of the HASC. On 7 January 1987, the House's Democratic party caucus voted 130-124 to remove Aspin from his position, largely for supporting

⁷⁶See, for example, Nunn's comments in Congress, Senate, Further Continuing Appropriations, Fiscal Year 1988, 100th Cong., 1st sess., H.J. Res. 395, Congressional Record, vol. 133, no. 197, daily ed. (11 December 1987), S17819 and Sam Nunn, "Arms Control in the Last Year of the Reagan Administration," Arms Control Today 18, no. 2 (March 1988): 4.

⁷⁷Sam Nunn, address before the Institute for Foreign Policy Analysis, 9 June 1988.

⁷⁸Nicholas Mavroules, Les Aspin, Vic Fazio, Beverly B. Byron, Les AuCoin, Charles E. Bennett, Norman D. Dicks, Steny H. Hoyer, Tony Coelho, Marty Russo, Marvin Leath, John M. Spratt, Albert G. Bustemante, Richard A. Gephardt, Barney Frank, Thomas S. Foley, W.G. (Bill) Hefner, and Solomon P. Ortiz to Ronald Reagan, 15 October 1986.

the Nunn-Warner Amendment.⁷⁹ As one observer put it:

The core of some liberals' discontent with Aspin is their sense that he lied to them on MX. They say he promised to oppose the MX in return for their support of his insurgency against Price [the previous chairman]. Instead, in 1985 he engineered a compromise with the Reagan administration that provided for limited production and deployment of the missile.⁸⁰

Although Aspin regained his post two weeks later by a vote of 133-116,⁸¹ his dismissal signaled a change in how his committee would conduct its business in the future. "No matter who wins," Jacqueline Calmes wrote prior to the balloting, "Armed Services will be less receptive to Pentagon brass than it historically has been, and more attentive to House Democrats."⁸² Or, as Rep. Thomas Downey (D-NY) was quoted as saying:

There's been a metamorphosis on the Armed Services Committee since I've served on it. It's gone from being an agent of the Department of Defense and the defense

⁷⁹Jacqueline Calmes, "Aspin Ousted as Armed Services Chairman," Congressional Quarterly Weekly Report, 10 January 1987, 83. Aspin became the committee's chairman after a similar "no-confidence vote" against his predecessor, Melvin Price.

⁸⁰Ibid.

⁸¹Jacqueline Calmes, "Aspin Makes Comeback at Armed Services," Congressional Quarterly Weekly Report, 24 January 1987, 139.

⁸²Jacqueline Calmes, "Four Battling for Armed Services Chairmanship," Congressional Quarterly Weekly Report, 17 January 1987, 104.

industry, to one where [Pentagon] apologists will have serious trouble staying as chairman.⁸³

Second, supporters of the SICBM continued to be concerned, with good reason, that their missile would be discarded once the deployment of additional Peacekeepers was secured or if the budget situation warranted. Although the Reagan administration requested just \$593 million for Peacekeeper rail garrison and more than \$2.2 billion for the SICBM in its FY 1988 defense budget,⁸⁴ press reports questioned the administration's commitment to the small missile. The Washington Post, for example, quoted an administration official who noted a "lack of enthusiasm for the Midgetman in many quarters, including the Joint Chiefs of Staff,"⁸⁵ while another Washington newspaper noted a similar lack of ardor within the Air Force. "That's an awful lot of money that's going to

⁸³Quoted in Ibid.

⁸⁴DOD, Annual Report, FY88, 206. Although the FY 1988 defense budget request was the first that specifically earmarked funds for rail-garrison basing, \$120 million was budgeted for the development of alternative ICBM basing modes during FY 1987 (HASC, Defense Authorization Act, FY88/89, Title I, 361). Of that amount, \$90 million was spent on the rail-garrison concept (Congress, Senate, Committee on Appropriations, Subcommittee on Defense, Department of Defense Appropriations, Fiscal Year 1988, pt. 3, 100th Cong., 1st sess., 21 April 1987, 374).

⁸⁵Quoted in Moore and Smith, "Reagan Favors Midgetman," A2.

come out of their strategic programs that they'd like to put elsewhere," one source remarked.⁸⁶ Even more ominously, the New York Times reported that:

Some Administration officials said the political plan . . . would be to ask for both the MX basing plan and the Midgetman development. And when budgetary pressures arise, as they inevitably will when the mood in the Congress is not to increase military spending, the Administration would sacrifice Midgetman in favor of MX.⁸⁷

These concerns were reinforced by the testimony of administration officials. Secretary Weinberger, for example, openly expressed his disdain for the small missile before the House Armed Services Committee. In his words:

The single-[warhead] missile is a very expensive missile that is being developed by the direction of the Congress We are proposing along both lines [the Peacekeeper and the SICBM], because we understand that to be the desire of Congress.⁸⁸

Similarly, Richard Perle--who opposed the SICBM for a number of reason, including its impact on SDI funding--

⁸⁶Quoted in Warren Strobel, "White House Approves Plan to Base MX Missiles on Rails," Washington Times, 19 December 1986, 10A.

⁸⁷Richard Halloran, "White House Seeks Funds for Basing MX on Train Cars," New York Times, 20 December 1986, 12.

⁸⁸Congress, House, Committee on Armed Services, National Defense Authorization Act for Fiscal Years 1988/1989--H.R. 1748, Authorization and Oversight, 100th Cong., 1st sess., 24 March 1987, 59. Italics added.

told the committee's Defense Policy Panel that:

one of the reasons why [the SICBM] is fully funded is because there is a belief in the White House, in the Air Force and in the Defense Department that the Congress might not give us the MX in rail garrison. Unless we keep two options open, we might find ourselves without any option.⁸⁹

Moreover, when Admiral Crowe, General Welch, and General Chain were pressed for their preference between Peacekeeper rail garrison and the SICBM, they unanimously chose the former because of its lower cost and earlier availability for deployment.⁹⁰

Prophetically, Welch noted that his strategic priorities paralleled "the order that they came down the road." Since the last B-1B had been approved as part of the FY 1986 defense budget, Peacekeeper rail garrison was now his and the Air Force's top priority, followed by the B-2 and then the SICBM.⁹¹ The B-2 bomber, however, was fast approaching procurement and soon would challenge Peacekeeper rail garrison for a share of the service's

⁸⁹HASC, National Security Policy, 146.

⁹⁰See, respectively, Congress, Senate, Committee on Armed Services, National Security Strategy, 100th Cong., 1st sess., 21 January 1987, 446; HASC, National Security Policy, 145-146, and SADS, DOD Appropriations, FY88, pt. 1, 208.

⁹¹Congress, Senate, Committee on Armed Services, Department of Defense Authorization for Appropriations for Fiscal Year 1988 and 1989, pt. 1, 100th Cong., 1st sess., 4 February 1987, 185.

budget.

Finally, the nation's fiscal problems also affected Peacekeeper rail garrison's fortunes. As Lawrence Korb and Steve Daggett pointed out, requests for defense spending increased an average of eight percent annually, after inflation, during President Reagan's first term. Moreover, the Congress approved almost 95 percent of the money the administration requested.⁹² Since 1985, however, the nation's defense budgets have been declining constantly. While funding for FY 1985 was 6.6 percent greater than the previous year, for example, the defense budgets for fiscal years 1986 and 1987 declined by 4.2 and 3.3 percent, respectively, when adjusted for inflation (see table 2).

In light of this trend, the FY 1988 five year defense plan called for a "modest, but essential, level of growth"--about three percent annually, after inflation.⁹³ Even this growth rate, however, proved to be unsustainable following the events of October 1987. On 19 October, before differences between the House and Senate defense authorization bills could be reconciled,

⁹²Lawrence J. Korb and Stephen Daggett, "The Defense Budget and Strategic Planning," in American Defense Annual, 45.

⁹³DOD, Annual Report, FY88, 97-98.

Table 2

DOD Budget Authority by Appropriation
(In Billions of Dollars)

	FY 1984	FY 1985	FY 1986	FY 1987
Current Dollars	258.2	286.8	281.1	279.5
FY89 Dollars	303.9	325.5	311.9	301.6
Percent Change	---	+6.6	-4.2	-3.3

Source: DOD, Annual Report, FY89, 297.

stock prices plummeted. The Dow Jones Industrial Average lost more than 22 percent of its value in one day, thereby reducing the equity value of the nation's stocks by more than \$500 billion. Moreover, since reaching a record high just two months earlier, the Dow had declined by 36 percent.⁹⁴

Although a number of explanations were offered for this turn of events--including rising interest rates, a declining dollar, and the threat of war following the United States' bombardment of an Iranian oil rig in the Persian Gulf--many felt that the nation's budget deficit was central to this loss of investor confidence. As Henry Kaufman put it:

⁹⁴Lawrence J. De Maria, "Stocks Plunge 508 Points, A Drop of 22%; 604 Million Volume Nearly Doubles Record," New York Times, 20 October 1987, A1.

Inflationary expectations were further heightened by the apparent stalemate between Congress and the Administration in reducing the Federal budget deficit. Even if the budget cuts from Gramm Rudman prevail, the deficit is likely to rise to \$160 billion or \$165 billion from about \$150 billion last year.⁹⁵

Dan Rostenkowski (D-IL), chairman of the House Ways and Means Committee, similarly argued that "the market is sending an unequivocal message to the President and the Congress to stop the political games and agree on a Federal deficit reduction plan."⁹⁶

That same day, Democratic congressional leaders urged President Reagan to convene an executive-legislative budget summit to negotiate a deficit reduction package, thereby forestalling \$23 billion in automatic cuts that otherwise would have been required by Gramm-Rudman-Hollings.⁹⁷ Although the administration refused similar requests earlier in the year, this time it acquiesced, and on 20 November, almost one month from the day the stock market collapsed, an agreement was

⁹⁵Henry Kaufman, "History Lessons We Failed to Learn: The Economic Forces Behind the Collapse," New York Times, 25 October 1987, C3.

⁹⁶Quoted in R.W. Apple, Jr., "Washington Quiet as Wall St. Panics," New York Times, 20 October 1987, D32.

⁹⁷See, for example, Jonathan Fuerbringer, "Democrats Urge Deficit-Cutting Plan," New York Times, 20 October 1987, D32.

concluded. Calling for a \$76 billion reduction in the deficit over the next two years,⁹⁸ the agreement also set new budget authority for defense at \$283.2 billion for FY 1988 and \$290.8 billion for the following year. Taken together, these new figures were almost \$53 billion less than the amounts requested for defense just ten and one-half months earlier.⁹⁹

Round One: The Fiscal Year 1988 Budget Battle

The first test of the administration's new ICBM modernization program occurred on 2 April 1987, when the HASC's Subcommittee on Research and Development voted to eliminate all funding for rail-garrison basing from the FY 1988 defense budget.¹⁰⁰ Although this action was partially reversed by the full committee--over the objections of Aspin and others who argued that the subcommittee's position should be retained as bargaining

⁹⁸See, for example, Jonathan Fuerbringer, "Agreement Signed to Reduce Deficit \$30 Billion in 1988," New York Times, 21 November 1987, 1 and Elizabeth Wehr, "Summit Deal Fails to Forestall Automatic Cuts," Congressional Quarterly Weekly Report, 21 November 1987, 2861.

⁹⁹DOD, Annual Report, FY89, 124-125.

¹⁰⁰Pat Towell, "Reagan Facing Major Rebuffs In Defense Authorization Bill," Congressional Quarterly Weekly Report, 4 April 1987, 616.

leverage for conference negotiations with the Senate¹⁰¹-- the committee's recommendations were indicative of the House's preference for the SICBM over the Peacekeeper. While the HASC voted to reinstate \$250 million for the development of rail-garrison basing, it also authorized full funding for the small missile.¹⁰² In addition, concerned about rail garrison's survivability and its effect on funding for the SICBM, among other programs, the committee also directed that the money it authorized "not be used to initiate full-scale development of the Rail-Garrison Peacekeeper system."¹⁰³

In contrast, the Senate Armed Services Committee reduced the budgets for both programs, authorizing \$400 million for Peacekeeper rail garrison and just \$700 million for the SICBM.¹⁰⁴ The latter's budget was reduced by more than two-thirds because of budgetary

¹⁰¹Pat Towell, "House Panel Votes \$306 Billion For Defense Authorization Bill," Congressional Quarterly Weekly Report, 11 April 1987, 674.

¹⁰²Congress, House, Committee on Armed Services, National Defense Authorization Act for Fiscal Years 1988/1989, 100th Cong., 1st sess., H. Rept. 100-58, 15 August 1987, 8.

¹⁰³Ibid., 133.

¹⁰⁴Congress, Senate, Committee on Armed Services, National Defense Authorization Act for Fiscal Years 1988 and 1989, 100th Cong., 1st sess., S. Rept. 100-57, 8 May 1987, 7 and 104.

constraints, the committee reported.¹⁰⁵ Funding a variety of conventional and nuclear weapon systems during an era of declining defense budgets, they noted, required that "priorities for new strategic initiatives . . . be reviewed with special scrutiny." And since the committee ranked ICBM modernization below the Trident SLBM and the B-2 bomber, full funding for the former simply was not available.¹⁰⁶ In fact, as Sen. Pete Wilson (R-CA) pointed out, the SASC came close to recommending that the SICBM program be terminated.¹⁰⁷

Although the Senate committee authorized more than its House counterpart for Peacekeeper rail garrison, it too expressed reservations about the weapon system's dependence on strategic warning. As the committee put it, it was "greatly reassured but not entirely persuaded by . . . [testimony] into the adequacy of, and DOD's confidence in receiving, strategic warning indications on

¹⁰⁵Ibid., 103.

¹⁰⁶Ibid., 7. The administration, as Weinberger testified, ranked the Trident SLBM and the B-2 bomber between the Peacekeeper and the SICBM in 1987 (SASC, DOD Authorization for Appropriations, FY88/89, pt. 1, 17 February 1987, 290). Chain concurred with this ranking in response to a question submitted by Senator Kasten (SADS, DOD Appropriations, FY88, pt. 1, 278).

¹⁰⁷SASC, Defense Authorization Act, FY88/89, 227.

a timely basis."¹⁰⁸ Concerns also were expressed about the operation of Peacekeeper trains following their dispersal. Would the Air Force, for example, be able to preserve the trains' location uncertainty?¹⁰⁹

By the time the full House considered the HASC's recommendations, a number of amendments concerning ICBM modernization had been introduced. Noting Peacekeeper rail garrison's vulnerability prior to dispersal, Dennis Hertel (D-MI), John Spratt (D-SC), and Nicholas Mavroules (D-MA), all members of the HASC, sought to eliminate funding for the weapon system from the FY 1988 defense budget. As they put it in a letter soliciting support from their colleagues, "survivability is the name of the game in ICBM modernization. Rail garrison falls far short of this objective." Instead, the amendment's sponsors argued that sufficient prior-year funding existed to continue research into the basing mode's viability.¹¹⁰ Of course, Aspin and other members of the

¹⁰⁸Ibid., 103. Of course, some were more concerned than others about the United States' ability to obtain and respond to strategic warning. See, for example, the opposing viewpoints of Senators Exon and Cohen (Ibid., 212-213 and 223-224).

¹⁰⁹Ibid., 103.

¹¹⁰Dennis M. Hertel, John Spratt, and Nick Mavroules to their colleagues in the House of Representatives, "Don't Backtrack: Stop Rail MX," 28 April 1987.

Subcommittee on Research and Development supported Hertel's position, if only as bargaining leverage. Their own "Dear Colleague" letter called Peacekeeper rail garrison "unwise strategically and fiscally. It detracts from deterrence and takes resources from other vital strategic programs."¹¹¹

Rail garrison's supporters responded by arguing that:

The rail garrison concept offers a promising solution to the long-standing problem of ICBM vulnerability. Given minimal strategic warning, U.S. missiles deployed in a rail garrison mode could be dispersed so widely that they would be essentially invulnerable to a Soviet attack.¹¹²

They also sought, however, to separate support for rail-garrison basing from the politically charged notion of deploying additional Peacekeepers by writing that rail-garrison research "in no way represents a decision to deploy more MX missiles."¹¹³

In addition to Hertel's recommendation that funding

¹¹¹Dennis M. Hertel, Joseph E. Brennen, George Hochbrueckner, Les Aspin, Pat Schroeder, and Frank McCloskey to their colleagues in the House of Representatives, "Stop Rail MX--Strike \$250 Million," 1 May 1987.

¹¹²William L. Dickinson, Samuel S. Stratton, and Dick Cheney to their colleagues in the House of Representatives, "Vote to Defeat the Frank and Hertel Amendments," 12 May 1987.

¹¹³Ibid.

for Peacekeeper rail garrison be eliminated from the upcoming defense budget, an amendment by Barney Frank (D-MA) sought to undercut the entire Peacekeeper program by deleting all but two of the 12 test missiles authorized by the HASC.¹¹⁴ Frank, an opponent of strategic modernization in general, argued that this would preclude the possibility of spare missiles being deployed as operational ICBMs.¹¹⁵ However, as Dickinson, Stratton (D-NY), and Cheney pointed out, "test missiles are to ICBMs as flying hours are to aircraft." Without an adequate test-launch program, confidence in Peacekeeper's accuracy and reliability would suffer, thereby reducing the missile's deterrent value. Frank's real objective, they concluded, was to "kill the MX program by denying the assets needed for testing the system."¹¹⁶ On 13 May, the Hertel and Frank amendments were defeated 184-239 and 163-258, respectively. In addition, a third amendment to eliminate all funding for the SICBM was defeated by a voice vote.¹¹⁷

¹¹⁴The administration requested 21 test missiles in 1987.

¹¹⁵House, Congressional Record, 13 May 1987, H3530.

¹¹⁶Dickinson, et al. to colleagues, 12 May 1987.

¹¹⁷See, House, Congressional Record, 13 May 1987, H3529, H3533, and H3536, respectively.

Although the Hertel and Frank amendments were unsuccessful, they demonstrate the extent of the House's opposition to the Peacekeeper and rail-garrison basing. Balloting on these amendments also illustrates the partisan nature of the ICBM modernization debate. Of the House's 177 Republicans, just 14 voted for the Hertel Amendment and only 19 supported Frank's measure. The Democrats, on the other hand, supported the former by a margin of almost two to one, while more than half voted for the latter. Southern Democrats, traditionally more conservative than their northern colleagues, opposed both.¹¹⁸

Having defeated all three challenges to the HASC's budget for ICBM modernization, the House approved its version of the defense authorization bill on 20 May by a vote of 239-177.¹¹⁹ The Senate, however, didn't reciprocate until more than four months later due to a Republican filibuster over provisions in its bill that would have granted either house of the Congress a veto over SDI testing and development that it deemed to be in

¹¹⁸"House Votes 118 and 119," Congressional Quarterly Weekly Report, 16 May 1987, 1020-1021. Southern Democrats voted 30-49 on Hertel and 16-64 on Frank.

¹¹⁹"House Vote 141," Congressional Quarterly Weekly Report, 23 May 1987, 1104-1105.

violation of the Anti-Ballistic Missile Treaty.¹²⁰ Therefore, it wasn't until 2 October that the Senate approved its defense authorization bill.¹²¹ A substitute amendment by Senators Nunn, Quayle (R-IN), Exon (D-NE), and Warner expressing the sense of the Senate that the authorization of funds for Peacekeeper rail garrison and the SICBM "does not constitute a commitment or express an intent to procure and deploy either or both" ensured that funding for ICBM modernization remained at the levels approved by the SASC.¹²²

Because the stock market crashed before the House and Senate defense authorization bills could be reconciled, the conferees created high- and low-tier

¹²⁰See, for example, Pat Towell, "Defense Stalemate Drags On; Nunn Threatens to Drop Bill," Congressional Quarterly Weekly Report, 25 July 1987, 1667 and Janet Hook, "Senate Begins Defense Debate as GOP Abandons Filibuster," Congressional Quarterly Weekly Report, 12 September 1987, 2195. The inclusion of this provision, the Levin-Nunn Amendment, led eight of the SASC's nine Republican members to vote against favorably reporting the bill to the Senate (See, SASC, Defense Authorization Act, FY88/89, 225-226).

¹²¹"Senate Vote 300," Congressional Quarterly Weekly Report, 10 October 1987, 2488-2489. The vote was 56-42.

¹²²Congress, Senate, Nunn (and Others) Amendment No. 769, 100th Cong. 1st sess., Congressional Record, vol. 133, no. 148, daily ed. (26 September 1987), S12917. Nunn et al.'s amendment was a substitute for an amendment by Carl Levin that sought to transfer \$900 million from the two ICBM modernization programs to convention weapon systems.

authorization levels pending the budget summit's outcome. Approved by a vote of 264-158 in the House and 86-9 in the Senate,¹²³ the rail-garrison program was authorized either \$100 million or \$300 million, while \$700 million or \$1.5 billion was approved for the SICBM.¹²⁴ The conferees also agreed to retain Nunn's amendment as a sense of Congress resolution.¹²⁵ President Reagan signed the FY 1988 defense authorization act on 4 December 1987.

Of course, the congressional budget process includes an appropriations as well as an authorization phase. And while these phases usually are more or less in sync with one another, events like the October stock market crash can result in significant disparities between them. While the House Appropriations Committee's defense subcommittee (HADS) recommended budgeting \$250 million for Peacekeeper rail garrison and \$1.6 billion for the SICBM,¹²⁶ its Senate counterpart (SADS) approved \$400

¹²³"House Vote 440 and Senate Vote 384," Congressional Quarterly Weekly Report, 21 November 1987, 2908-2910.

¹²⁴Congress, House, Conference Report, National Defense Authorization Act for Fiscal Years 1988 and 1989, 100th Cong., 1st sess., H. Rept. 100-446, 17 November 1987, 517.

¹²⁵Ibid., 38-39.

¹²⁶Congress, House, Committee on Appropriations, Subcommittee on the Department of Defense, Department of Defense Appropriations Bill, 1988, 100th Cong., 1st

million for the former while eliminating all funding for the latter, concluding that the small missile "is unaffordable in view of present and future defense budget constraints and of the need to fund higher priority strategic and conventional programs." Instead, the SADS' bill, the first committee report since the November budget agreement, argued that Peacekeeper rail garrison would provide "sufficient survivability to warrant its far less costly development."¹²⁷ For its part, the HADS added a caveat stating that funding for the development of rail-garrison basing should "not be construed as support for a deployment of more than 50 MX missiles" and directed the Air Force to "study rail basing as an alternative to silo basing for the currently approved deployment."¹²⁸

In the early hours of 22 December 1987, a little more than a month after the budget agreement and almost three months after the start of the new fiscal year, the Congress approved the FY 1988 continuing budget resolution. Included in the omnibus spending bill was a

sess., H. Rept. 100-410, 28 October 1987, 247.

¹²⁷Congress, Senate, Committee on Appropriations, Subcommittee on Defense, Department of Defense Appropriation Bill, 1988, 100th Cong., 1st sess., S. Rept. 100-235, 4 December 1987, 298.

¹²⁸HADS, Defense Appropriations Bill, 1988, 247.

compromise between the appropriations committees regarding ICBM modernization. Splitting the difference on both programs, \$350 million was approved for Peacekeeper rail garrison and \$700 million for the SICBM.¹²⁹ President Reagan signed the budget resolution the same day.

Round Two: The Fiscal Year 1989 Budget Battle

Although 1987 ended with neither Peacekeeper rail garrison nor the SICBM funded at the levels the administration requested, both remained part of the defense budget, thereby maintaining the linkage many deemed essential if either ICBM was ever to be deployed. Moreover, Caspar Weinberger's resignation in November 1987 and his replacement by Frank Carlucci held out the promise of improved relations between the Pentagon and the Congress.¹³⁰ "My style in the past has been to work closely with the Congress. I intend to continue that

¹²⁹Congress, House, Making Further Continuing Appropriations for the Fiscal Year Ending September 30, 1988, 100th Cong., 1st sess., H.J. Res. 100-498, 22 December 1987, 649.

¹³⁰See, for example, Pat Towell, "Carlucci Brings a Softer Tone to Hill Discussions of Defense," Congressional Quarterly Weekly Report, 14 November 1987, 2798 and David J. Lynch, "Carlucci Offers Olive Branch to Hill," Defense Week, 16 November 1987, 2.

style in the future," Carlucci was quoted as saying.¹³¹ The promise of better relations, however, was dampened by the Pentagon's budget woes. While the November budget agreement simplified the usually contentious task of deciding how much to spend on defense by setting new budget authority for FY 1989 at \$290.8 billion, it compounded the difficulty of deciding what to fund by reducing that year's budget by almost nine percent.¹³² In addition, the Defense Department estimated that it would have to reduce its spending plans by as much as \$300 billion over the next five years.¹³³

Given the likelihood of declining defense budgets for the foreseeable future, the SICBM's high cost and low priority within the Pentagon made it a prime candidate for cancellation. And as early as mid-December 1987--even before the FY 1988 appropriations bill was complete --the press was reporting Air Force efforts to kill the

¹³¹Lynch, "Olive Branch," 2.

¹³²DOD, Annual Report, FY89, 125.

¹³³See, for example, Carlucci's testimony in Congress, Senate, Committee on Armed Services, Department of Defense Authorization for Appropriations for Fiscal Year 1989, pt. 1, 100th Cong., 2d sess., 18 February 1988, 61.

program.¹³⁴ As General Welch put it:

There is simply not enough funding available in the strategic accounts to pay for both [Peacekeeper rail garrison and the SICBM]. If the funding is not there, we would have to find the funds in the conventional accounts, but that would necessitate reducing conventional deterrence, and we are simply not willing to do that for the additional 500 warheads the SICBM program would give us--not worth the trade off.¹³⁵

Secretary Carlucci agreed with this assessment and approved the small missile's cancellation. "Clearly, we cannot afford the additional \$40 billion required to complete the [SICBM] system, given the severely constrained funding levels we now face."¹³⁶ Peacekeeper rail garrison, he argued, would provide "almost, and maybe all, of the invulnerabilities that Midgetman will give you."¹³⁷

Although Carlucci's decision to cancel the SICBM may have made economic sense, it underestimated the strength

¹³⁴See, for example, David J. Lynch, "Air Force Plans Midgetman's Death," Defense Week, 14 December 1987, 1. Admiral Crowe's testimony before the SASC confirmed these reports. "The Air Force recommended zero funding for the Small ICBM program," the admiral recalled (SASC, DOD Authorization for Appropriations, FY89, pt. 1, 18 February 1988, 107).

¹³⁵Welch, IFPA address, 24 March 1988.

¹³⁶DOD, Annual Report, FY89, 232-233.

¹³⁷Congress, Senate, Committee on Foreign Relations, The INF Treaty, 100th Cong., 2d sess., 1 February 1988, 66.

of the small missile's political ties to the Peacekeeper as key congressmen and defense experts quickly mobilized to try and keep the SICBM alive until the next administration. "If you go with one or the other, you may lose both," Robert McFarlane, a former Reagan administration national security advisor, recounted. "This was the message we received from Senator Nunn and Congressman Aspin over and over, and this is the message that we gave to Mr. Carlucci in December at a number of meetings."¹³⁸

To avoid such an outcome, Nunn, Warner, and Aspin urged Carlucci to provide sufficient funding "to ensure that all parts of the small ICBM program . . . are maintained and moved forward in such a way that it presents a credible option for the next President as he makes decisions prioritizing the ICBM modernization

¹³⁸Robert C. McFarlane, address before the Institute for Foreign Policy Analysis, March 1988. The "we" to which McFarlane referred is the Discussion Group on Strategic Policy that he was directing under the auspices of the Center for Strategic and International Studies and the Johns Hopkins Foreign Policy Institute. In addition to McFarlane, its members were William Cohen, Sam Nunn, John Warner, Les Aspin, Dr. Amos Jordan, and R. James Woolsey. Harold Brown and Brent Scowcroft cochaired the group until Scowcroft left to become Bush's National Security Advisor. The result of their efforts is Detering Through the Turn of the Century: A Report of the Discussion Group on Strategic Policy (Washington, D.C.: Center for Strategic and International Studies and Johns Hopkins Foreign Policy Institute, 1989).

program."¹³⁹ Carlucci responded to this and similar pressure by reversing his earlier decision. Writing to Aspin, Carlucci noted that while he remained opposed to the small missile because of its cost, he also understood the desire of others to see the program continued and agreed to request as much as \$200 million for that purpose in FY 1989.¹⁴⁰ In return, the chairmen and ranking minority members of the Congress' armed services committees and appropriations defense subcommittees promised to support both ICBMs during that year's budget process and urged their colleagues to do the same.¹⁴¹

In addition to its attempted termination of the SICBM, the administration also sought to procure 12 additional Peacekeepers as part of its defense budget request, with eight of those missiles specifically earmarked for rail-garrison basing beginning in late 1991.¹⁴² Like the decision to cancel the SICBM, however, this determination also proved to be a political

¹³⁹Sam Nunn, John W. Warner, and Les Aspin to Frank C. Carlucci, 28 January 1988.

¹⁴⁰Frank C. Carlucci to Les Aspin, 2 February 1988.

¹⁴¹See, for example, Les Aspin, William L. Dickinson, Bill Chappell, Jr., and Joseph M. McDade to their colleagues in the House of Representatives, "Honoring the Agreement on ICBM Modernization," 23 February 1988.

¹⁴²DOD, Annual Report, FY89, 232.

miscalculation. By linking the purchase of spare missiles with rail garrison's deployment, a vote for one appeared to be a vote for the other as well.¹⁴³

Since the Congress was unlikely to approve Peacekeeper rail garrison's deployment prior to the November presidential election, if at all, Carlucci again reversed his position. "I have indicated in my testimony that we would put 8 of 12 MX missiles that we are requesting on MX rail garrison," he stated during subsequent testimony before the HASC. "My own sense," he continued, "is that it is premature at this point to ask the Congress to commit to that basing mode until you have had a full opportunity to examine the R&D and the developmental process."¹⁴⁴

Despite this latest reversal, however, Carlucci authorized full-scale development of Peacekeeper rail garrison on 13 May 1988.¹⁴⁵ And just five days later,

¹⁴³Frank C. Carlucci to Sam Nunn, 3 March 1988.

¹⁴⁴Congress, House, Committee on Armed Services, National Defense Authorization Act for Fiscal Year 1989--H.R. 4264, Authorization and Oversight, 100th Cong., 2d sess., 24 February 1988, 3.

¹⁴⁵The Secretary of Defense to the Secretary of the Air Force, "Peacekeeper Rail Garrison Milestone II Acquisition Decision Memorandum," 13 May 1988. As mentioned above, this was the first recommendation by the Defense Acquisition Board or its predecessors regarding ICBM modernization during the Reagan administration.

the Pentagon awarded contracts worth a total of \$328.7 million to Westinghouse and Rockwell International to develop, respectively, the weapon system's missile launch car and launch control system.¹⁴⁶ Boeing was awarded a five-year \$235 million contract to design and develop the program's test and support system in September of the previous year.¹⁴⁷

Rail garrison's critics responded by accusing DOD of trying to lock the next administration into the rail-garrison program at the small missile's expense.¹⁴⁸ The Defense Department's request for eight rail-garrison missiles and Carlucci's earlier testimony only served to reinforce this impression. In response to a question from Senator Shelby (D-AL), for example, the Defense

¹⁴⁶George C. Wilson, "Rail-Mobile MX is Pressed by Carlucci," The Washington Post, 19 May 1988, A1 and A40.

¹⁴⁷David J. Lynch, "Boeing Wins \$235 Million Job to Begin MX Rail Garrison Work," Defense Week, 21 September 1987, 5. Under the terms of this contract, an Air Force point paper noted, Boeing was responsible for the development, design, and testing of the Peacekeeper train's locomotive, fuel tender, and maintenance car; designing the garrison area; development of the garrison's physical security system; assembly and system support; system requirements analysis; planning and conducting system tests; and the development of training requirements and the actual training of system personnel.

¹⁴⁸Wilson, "Rail-Mobile MX Pressed," A1. Also see Paul Simon's comments in Congress, Senate, Rail-Garrison MX Missile Program, 100th Cong., 2d sess., Congressional Record, vol. 134, no. 75, daily ed. (25 May 1988), S6686-S6687.

Secretary noted that Peacekeeper rail garrison was proceeding "as fast as we can fund it."¹⁴⁹

In addition to the above, Carlucci also announced his preference that the 50 silo-based Peacekeepers be redeployed in the rail-garrison mode. "I do not think it is desirable to have the MX in fixed silos," he remarked during hearings on the INF Treaty. "I think they ought to be taken out of the fixed silos and put on a mobile system. And I hope the Congress would support us on that."¹⁵⁰ Although his testimony didn't address the deployment of additional missiles, subsequent statements made clear that fielding 100 Peacekeepers remained the administration's objective.¹⁵¹ As the Defense Department's Annual Report to the Congress for FY 1989 put it, the "long-term goal is to deploy 100 Peacekeepers in the rail-garrison mode, including the 50 missiles

¹⁴⁹SASC, DOD Authorization for Appropriations, FY89, pt. 1, 18 February 1988, 67.

¹⁵⁰Committee on Foreign Relations, The INF Treaty, 66. As Carlucci explained, he considered silo basing for the ten-warhead Peacekeeper destabilizing (Frank C. Carlucci, telephone interview by author, 21 November 1991, Written notes, the Carlyle Group, Washington, D.C.).

¹⁵¹See, for example, Carlucci's testimony in HASC, Defense Authorization Act, FY89, Authorization and Oversight, 3.

initially deployed in silos."¹⁵² More specifically, spare missiles not needed immediately for test launches would be deployed in the rail-garrison mode first. Then, those missiles already in silos would be rebased, thereby creating the possibility that at least some silo-based Peacekeepers might be moved to garrisoned railroad cars before the Congress authorized the deployment of 50 additional missiles.¹⁵³

Although redeploying the silo-based Peacekeeper force appeared to many to be a logical extension of the rationale for rail-garrison basing, the Air Force opposed the idea. After all, the Air Force reasoned, the basing mode was developed to field additional Peacekeepers, not to rebase those already deployed. As Secretary of the Air Force Edward Aldridge put it, his department was "happy" with the missile in silos. "In the silos," Aldridge remarked, "they are the most cost-effective deterrent we have. That is much cheaper than rail-garrison or any other basing mode."¹⁵⁴ General Chain concurred, stating that he was perfectly comfortable with

¹⁵²DOD, Annual Report, FY89, 232.

¹⁵³Carlucci to Nunn, 3 March 1988.

¹⁵⁴Congress, House, Committee on Appropriations, Subcommittee on the Department of Defense, Department of Defense Appropriations for 1988, pt. 2, 100th Cong., 1st sess., 26 February 1987, 673.

that arrangement. Therefore, he asked, why spend billions of dollars to rebase the first 50 Peacekeepers?¹⁵⁵

In light of the Air Force's opposition, it is not surprising that subsequent testimony by the service's leadership made no reference to Carlucci's proposal.¹⁵⁶ Nor is it surprising that the Air Force continued deploying Peacekeepers in Minuteman silos pending a formal change in policy.¹⁵⁷ That change never occurred, however. In fact, the following year's Annual Report to the Congress waffled on Carlucci's pronouncement. While he originally indicated that at least some of the silo-based Peacekeepers might be redeployed before the Congress authorized 50 additional missiles, the Defense

¹⁵⁵John T. Chain, telephone interview by author, 20 June 1991, Written notes, Burlington Northern Railroad, Fort Worth, TX.

¹⁵⁶See, for example, Aldridge and Welch's testimony in Congress, Senate, Committee on Appropriations, Subcommittee on Defense, Department of Defense Appropriations, Fiscal Year 1989, pt. 2, 100th Cong., 2d sess., 30 March 1988, 125-241.

¹⁵⁷See, for example, David J. Lynch, "Air Force Ignores Carlucci Support of Putting MX on Rails," Defense Week, 8 February 1988, 11. Tom Maxwell, then the Air Force's Program Element Monitor for Peacekeeper rail garrison, noted that the service's POM never was restructured to incorporate Carlucci's preference for 100 Peacekeepers in the rail-garrison mode (Thomas Maxwell, telephone interview by author, 6 November 1991, Written notes, Aerojet ASRM Division, Iuka, MS).

Department's Annual Report for FY 1990 called the Peacekeeper's deployment in Minuteman silos "the first phase of the ICBM modernization program." The second phase was deploying "the second 50 Peacekeepers in a rail-garrison mode."¹⁵⁸ Although 100 rail-garrison Peacekeepers remained DOD's "long-term" objective, this language was consistent with the Air Force's position. If any part of the silo-based Peacekeeper force was to be redeployed, it would occur after phase two was complete, not before. As General Chain put it a year earlier, "after we deploy the second 50 [Peacekeepers], [then] we go back and make a decision to take the first 50 out of the holes in the ground."¹⁵⁹

When the administration submitted its FY 1989 defense budget to the Congress, it included \$792.9 million for Peacekeeper rail garrison. In addition, \$200 million was requested to keep the SICBM program alive until the next administration took office.¹⁶⁰ SDI's budget, in contrast, was set at \$4.5 billion.¹⁶¹

¹⁵⁸Department of Defense, Annual Report to the Congress, Fiscal Year 1990 (Washington, D.C.: GPO, 17 January 1989), 185.

¹⁵⁹SADS, DOD Appropriations, FY88, pt. 1, 201.

¹⁶⁰DOD, Annual Report, FY89, 232-234.

¹⁶¹Ibid., 240.

Supporters of the small missile, however, argued that \$200 million would not maintain the SICBM's contractor base, thereby creating significant delays in the program should the next administration choose to continue it.¹⁶² The HASC, for example, claimed that the weapon system's IOC date would be delayed two to three years if its budget remained at the amount requested,¹⁶³ while the Assistant Comptroller General estimated that \$600 million was necessary to continue meaningful development of the SICBM and its basing mode if the time required to requalify contractors was not a consideration. Minimizing the program's restart time would have required twice that amount.¹⁶⁴

While the administration's objective was to spend as little as possible on the SICBM--a program it would have preferred to cancel--advocates of the small missile sought to keep both ICBMs on "relatively equal footing" and threatened to postpone Peacekeeper rail garrison "a

¹⁶²Les Aspin and Bill Chappell, Jr. to Frank C. Carlucci, 15 March 1988.

¹⁶³Congress, House, Committee on Armed Services, National Defense Authorization Act for Fiscal Year 1989, 100th Cong., 2d sess., H. Rept. 100-563, 5 April 1988, 15.

¹⁶⁴Frank C. Conahan to John W. Warner, 7 July 1988.

similar length of time" if their program was delayed.¹⁶⁵

As Representative Mavroules put it:

it is imperative that we establish a level playing field for the next administration, so that the next President can equally weigh the pros and cons of the Midgetman and MX. We should not take that decision away from him; he should be free to consider all the options.¹⁶⁶

To that end, the HASC reduced rail garrison's budget to \$500 million and increased funding for the small missile to an equal amount. The committee also expressed a number of concerns about rail-garrison basing and directed the Air Force to continue as much of the SICBM program as possible while examining ways to reduce its cost, including the addition of a second warhead, an option that many of the missile's supporters previously rejected.¹⁶⁷ The SASC, in contrast, authorized \$700 million for Peacekeeper rail garrison and just \$50 million for the SICBM. As it had the year before, the committee stressed the need to prioritize and scrutinize strategic programs during "a period of declining defense budgets . . . and substantial unmet needs outside the

¹⁶⁵Aspin and Chappell to Carlucci, 15 March 1988.

¹⁶⁶House, Congressional Record, 5 May 1988, H3015.

¹⁶⁷HASC, Defense Authorization Act, FY89, 15-17. The committee's concerns and recommendations largely were based upon an earlier HASC report. See HASC, Program Review.

strategic forces area."¹⁶⁸

The day after the Senate committee's report was released, the House of Representatives considered four amendments concerning ICBM modernization. The first, by John Rowland (D-GA), sought to eliminate all funding for the small missile. That amendment, the first recorded vote on the SICBM, was defeated 100-309. Next, Dennis Hertel again urged his colleagues to eliminate Peacekeeper rail garrison from the defense budget. Like his amendment the previous year, however, this one also was rejected, this time by a vote of 143-265. A third amendment by Bill Dickinson proposed spending \$650 million on rail-garrison basing and \$350 million on the small missile. His amendment, a compromise between the administration's request and the HASC's recommendation, also was defeated. Of the House's 435 members, 156 favored the amendment while 247 opposed it.¹⁶⁹

Although the Rowland, Hertel, and Dickinson amendments were easily defeated, a fourth by Nicholas Mavroules and Les AuCoin (D-OR) was approved by a vote of

¹⁶⁸Congress, Senate, Committee on Armed Services, National Defense Authorization Act for Fiscal Year 1989, 100th Cong., 2d sess., S. Rept. 100-326, 4 May 1988, 6 and 54.

¹⁶⁹House, Congressional Report, 5 May 1988, H2999-H3014.

233-171, thereby reducing Peacekeeper rail garrison's budget to \$100 million and increasing the SICBM's to \$600 million.¹⁷⁰ As Aspin explained it, balloting on the Rowland and Hertel amendments demonstrated the House's support for the agreement to fund both mobile ICBMs in FY 1989. However, the SASC's actions made Mavroules-AuCoin necessary as bargaining leverage for the upcoming conference negotiations with the Senate.¹⁷¹ The same amendment had been defeated in committee by a vote of 12-28.

Given the outcome in the House, Secretary Carlucci asked that the Senate retain the SASC's funding levels. As he put it in a letter to Sam Nunn:

given the House mark of \$100 million for Rail [Garrison] and \$600 million for [the] Small [ICBM], it appears the Senate will have to compromise at some intermediate position on Rail Garrison in the upcoming Conference with the House. I would hope that the net effect of such a compromise is to keep Rail Garrison funding as close as possible to the [Senate]

¹⁷⁰Ibid., H3015-H3017.

¹⁷¹Ibid., H3014. This series of votes also provides additional evidence of the partisan nature of the ICBM modernization debate. Only 11 Democrats voted for the Rowland Amendment and only 11 Republicans for Hertel. Likewise, Republican members of the House strongly favored the Dickinson Amendment (136-32), while their Democratic colleagues were overwhelmingly supportive of Mavroules-AuCoin (211-23) ("House Votes 106, 107, 108, and 109," Congressional Quarterly Weekly Report, 7 May 1988, 1256-1257).

Committee mark of \$700 million.¹⁷²

The Senate complied by tabling an amendment by Paul Simon and Carl Levin (D-MI) that sought to shift \$500 million from Peacekeeper rail garrison to conventional weapons programs, including Hellfire missiles for the Army and war reserve spare parts for the Air Force.¹⁷³ The Simon-Levin Amendment, the Senate's first vote on Peacekeeper rail garrison, was tabled by a vote of 61-36 on 12 May 1988.¹⁷⁴

During reconciliation of the House and Senate authorization bills, the conferees arrived at a compromise providing \$250 million each for Peacekeeper rail garrison and the SICBM. In addition, another \$250 million was placed in escrow until 31 March 1989, by which time the new administration would decide how that money would be spent. Moreover, neither program could be terminated prior to 21 January, the date of the next president's inauguration.¹⁷⁵ As was the case the

¹⁷²Frank C. Carlucci to Sam Nunn, 11 May 1988.

¹⁷³Senate, Congressional Record, 12 May 1988, S5541.

¹⁷⁴Ibid., S5548. In this instance, Republicans voted 39-5 in favor of tabling the amendment, while the Democratic vote was 22-31 ("Vote 133," Congressional Quarterly Weekly Report, 14 May 1988, 1342).

¹⁷⁵Congress, House, Conference Report, National Defense Authorization Act, Fiscal Year 1989, 100th Cong., 2d sess., H. Rept. 100-753, 7 July 1988, 19-20.

previous year, the conference report also contained a sense of Congress resolution stating that development of Peacekeeper rail garrison and the SICBM "does not constitute a commitment or express an intent" to procure either weapon system.¹⁷⁶

Although this compromise allowed as much as \$500 million to be spent on rail-garrison basing, Carlucci protested that it was \$50 million shy of the minimum investment necessary to keep the weapon system on schedule for deployment beginning in 1991. That issue, along with several others, drew threats of a Presidential veto.¹⁷⁷

On 3 August, President Reagan made good on those threats and returned H.R. 4264, the National Defense Authorization Act for Fiscal Year 1989, to the Congress. With regard to Peacekeeper rail garrison, the President's veto message stated that:

The bill. . . . does not assure our rail-mobile PEACEKEEPER program--a program critical to ensuring the continued effectiveness of the land-based leg of the triad of forces we have relied upon for several decades. The Soviet Union continues, without letup, its own strategic modernization program which includes

¹⁷⁶Ibid., 29.

¹⁷⁷Frank C. Carlucci to John W. Warner, 7 July 1988.

both new rail- and road-mobile ICBMs.¹⁷⁸

Reagan also linked rail garrison's development to the ongoing START negotiations, writing that:

Bolder agreements and deeper, stabilizing cuts are only possible if we maintain our resolve. The Congress must fully fund the modernization of our strategic forces. The Congress must stop tying the hands of our negotiators in Geneva.¹⁷⁹

On 28 September, the Congress approved a revised defense authorization bill for the President's signature. Included was a compromise crafted by Nunn, Aspin, and Carlucci that increased to \$600 million the amount that could be spent on Peacekeeper rail garrison. Only \$250 million, however, could be used prior to 15 February 1989.¹⁸⁰ The President signed the revised defense authorization act on 29 September. The companion appropriations bill was passed by both houses of the Congress the next day and signed by the President on 1

¹⁷⁸Ronald Reagan, "Message to the House of Representatives Returning Without Approval the National Defense Authorization Act, Fiscal Year 1989," Weekly Compilation of Presidential Documents 24, no. 31 (8 August 1988): 997.

¹⁷⁹Ibid., 998.

¹⁸⁰Congress, House, Conference Report, National Defense Authorization Act for Fiscal Year 1989, 100th Cong., 2d sess., H. Rept. 100-989, 28 September 1988, 20.

October, the first day of the new fiscal year.¹⁸¹

On 8 November 1988, George Bush defeated Michael Dukakis for the presidency of the United States, receiving 54 percent of the popular vote and a vast majority of the nation's electoral votes.¹⁸² During the campaign, Bush called for keeping both Peacekeeper rail garrison and the SICBM alive pending completion of a START agreement with the Soviet Union.¹⁸³ Dukakis, on the other hand, opposed both programs.¹⁸⁴ Although Bush's position signalled yet another opportunity for

¹⁸¹Unlike the previous year, the amounts authorized and appropriated for ICBM modernization were largely the same for FY 1989. See Congress, House, Committee on Appropriations, Subcommittee on the Department of Defense, Department of Defense Appropriations Bill, 1989, 100th Cong., 2d sess., H. Rept. 100-681, 10 June 1988, 174; Congress, Senate, Committee on Appropriations, Subcommittee on Defense, Department of Defense Appropriations Bill, 1989, 100th Cong., 2d sess., S. Rept. 100-402, 24 June 1988, 226-227; and Congress, House, Conference Report, Making Appropriations for the Department of Defense, 100th Cong., 2d sess., H. Rept. 100-1002, 28 September 1988, 82-83.

¹⁸²See, for example, E.J. Dionne, Jr., "Bush is Elected by a 6-5 Margin with Solid G.O.P. Base in South; Democrats Hold Both Houses," New York Times, 9 November 1988, A1.

¹⁸³R. Jeffrey Smith, "Cheney Urges Bush to Back MX Rail Plan," Washington Post, 19 April 1989, A6 and Warren Strobel, "Bush Seen Hedging Choice Between MX, Midgetman," Washington Times, 14 February 1989, A3.

¹⁸⁴Bill Gertz, "U.S. Satellites Detect Marked Increase in Mobile Soviet ICBMs," Washington Times, 14 October 1988, A6.

consensus on the long-contentious issue of ICBM modernization, both mobile missiles continued to compete with one another, the Strategic Defense Initiative, and other programs for a share of the nation's rapidly shrinking defense budgets.

Two additional events also would have a significant effect on rail garrison's fortunes during the Bush administration. First, the B-2 bomber was unveiled during a November 1988 roll-out ceremony. Already estimated to cost at least \$450 million each, the roll-out was designed, in part, to increase public and congressional support for the aircraft.¹⁸⁵ It also intensified competition for increasingly scarce resources within the Air Force as that service began setting its priorities for the 1990s and beyond. Second, the new administration's first year in office began with the Soviets withdrawing their forces from Afghanistan and ended with the collapse of the Berlin Wall, thereby signalling the beginning of the end of the Cold War. These and subsequent changes in Eastern Europe and the

¹⁸⁵See, for example, David J. Lynch, "Invisible Bomber Was Seen in California Desert; Several Thousand on Hand," Defense Week, 28 November 1988, 6-7. Less than a month later, the Air Force announced that the plane's cost had increased to \$516 million per copy for 132 aircraft. Of course, if fewer B-2s were procured, the aircraft's unit cost would go even higher ("Price on B-2 No Longer Invisible, Defense Week, 3 January 1989, 11).

Soviet Union greatly affected perceptions of the need for further strategic modernization and the fate of weapon systems like Peacekeeper rail garrison.

CHAPTER 5
PEACEKEEPER RAIL GARRISON DURING THE BUSH
ADMINISTRATION

The survivability and flexibility created by rail basing will greatly strengthen deterrence by complicating the Soviets' ability to attack [the Peacekeeper], thereby reducing their confidence in being able to strike our forces successfully.

Dick Cheney, January 1990¹

I am terminating the development of the mobile Peacekeeper ICBM as well as the mobile portions of the small ICBM program.

George Bush, September 1991²

The first three years of the Bush administration were both apex and nadir for Peacekeeper rail garrison. Bush's support for both rail-garrison basing and the SICBM during the 1988 presidential election campaign, his selection of Brent Scowcroft as National Security Advisor, and the promise of greater bipartisanship following the general election made 1989 the most

¹Secretary of Defense, Annual Report to the President and the Congress (Washington, D.C.: GOP, January 1990), 32.

²"The Peace Dividend I Seek Is Not Measured in Dollars....," Washington Post, 28 September 1991, A23.

promising year for progress on ICBM modernization since 1983, the year of the Scowcroft Commission's report. By the year's end, however, events in Eastern Europe and the Soviet Union, culminating in the collapse of the Berlin Wall, signaled the beginning of the end of the Cold War and greatly diminished the perceived need for mobile ICBMs. In the summer of 1990, President Bush deferred Peacekeeper rail garrison's deployment, although research and development continued. Then, in September of the following year, the rail-garrison program was canceled outright as part of a major U.S. arms control initiative, thereby ending a quarter-century-long saga that began with plans for a follow-on missile to the Minuteman series of ICBMs.

Growing Support for a Two-Missile Compromise

George Bush laid the foundation for progress on ICBM modernization when, as part of his campaign to succeed Ronald Reagan as President of the United States, he endorsed keeping both Peacekeeper rail garrison and the SICBM alive pending the outcome of START negotiations with the Soviet Union. By abandoning the Reagan administration's preference that the small missile be terminated, Bush acknowledged the linkage that many considered essential to further modernization of the

land-based missile force. Calling ICBM modernization one of his top priorities, candidate Bush said that "the real choice now is to find a possible mix between the two [missiles]."³ His opponent, Michael Dukakis, opposed both missile systems.

In addition to voicing his support for both ICBMs, Bush added considerable substance to his campaign rhetoric by selecting Brent Scowcroft as his National Security Advisor, thereby placing an influential advocate of ICBM modernization and the SICBM in one of the administration's most powerful positions. As chairman of the President's Commission on Strategic Forces, Scowcroft attempted to fashion a consensus on ICBM modernization through a tripartite compromise: the immediate deployment of Peacekeeper missiles in existing Minuteman silos, the development of a small, mobile ICBM to be deployed beginning in the early 1990s, and continued arms control negotiations with the Soviets.⁴ Although the Scowcroft Commission recommended that both Peacekeeper and the SICBM be deployed, its emphasis, unlike the Reagan administration's, clearly was on the latter.

³Quoted in R. Jeffrey Smith, "Cheney Urges Bush to Back MX Rail Plan," Washington Post, 19 April 1989, A6.

⁴The President's Commission on Strategic Forces, Report of the President's Commission on Strategic Forces (Washington, D.C.: GPO, April 1983), 15-25.

"Stability," the commission wrote, "would be fostered by a dual approach toward arms control and ICBM deployments which moves toward encouraging small, single-warhead ICBMs."⁵ Deploying a limited number of Peacekeepers was just another means to that end.

Given the commission's ultimate objective, it is not surprising that Scowcroft and other commission members protested when the Reagan administration sought to eliminate the SICBM in favor of the less-costly rail-garrison program.⁶ For example, in their contribution to a bipartisan report to the 41st President, Scowcroft and fellow commission member R. James Woolsey wrote that deciding how survivable the nation's ICBM force should be would be "in many ways the most important decision the President will make about strategic forces," since numerous other procurement and arms control decisions would follow from it.⁷ If the next President determined that strategic warning would be available and reacted to

⁵Ibid., 23.

⁶See, for example, Brent Scowcroft, John Deutch, and R. James Woolsey, "Come and Get Us: Reagan's Latest Nuclear Strategy," New Republic, 18 April 1988, 16.

⁷Brent Scowcroft and R. James Woolsey, "Defense and Arms Control," in American Agenda: Report to the Forty-First President of the United States of America, ed. Gerald R. Ford and Jimmy Carter (Camp Hill, PA: Book-of-the-Month Club, 1988), 105.

adequately, Scowcroft and Woolsey felt that rail garrison would add little to the U.S. strategic deterrent, since additional bombers and submarines could be placed on alert as a crisis developed.⁸ If, on the other hand, he decided that ICBMs should be survivable even in a bolt-from-the-blue situation, the authors argued that rail-garrison basing would be inadequate, especially as the Soviets improved the accuracy of their SLBMs and tested them in depressed trajectories.⁹ Instead, Scowcroft and Woolsey recommended carry-hard basing for "any of several ICBMs" or the SICBM deployed in southwest basing, at Minuteman sites, or some combination of the two.¹⁰ Carry hard, a basing mode that lacked a significant constituency in either the executive branch or the Congress, appears to have been included as an alternative possibly acceptable to a Dukakis administration.¹¹ As

⁸Ibid.

⁹Ibid., 103-104.

¹⁰Ibid., 104-105.

¹¹Although carry-hard basing continued to receive some support following the December 1986 rail-garrison decision, especially from individuals who were or had been associated with USDRE/USDA (see, for example, Donald A. Hicks, "ICBM Modernization: Consider the Alternatives," International Security 12, no. 2 [Fall 1987]: 179), the Air Force remained opposed to the concept for a number of reasons, including its cost, land-use requirements, and problems associated with preserving the missiles' location uncertainty (see, for

Les Aspin put it:

If things had been different and Michael Dukakis sat in the oval office, carry-hard might be the weapon of choice. Given his hostility to Rail MX and his discomfort with Midgetman, carry-hard with Minuteman III might have been the ideal Dukakis solution: old missile, new survivable basing.¹²

Although Scowcroft and Woolsey didn't address the possibility of a two-missile compromise, they didn't rule out such an arrangement either. In fact, a discussion group that Scowcroft cochaired until joining the Bush administration suggested that those Peacekeepers already in silos could be rebased on garrisoned railroad cars once the SICBM was deployed or an unspecified portion of the silo-based ICBM force was placed in multiple carry-hard shelters.¹³ Although the group concluded that

example, General Welch's testimony in Congress, Senate, Committee on Armed Services, Department of Defense Authorization for Appropriations for Fiscal Years 1990 and 1991, pt. 2, 101st Cong., 1st sess., 21 June 1989, 296 and David J. Lynch, "Air Force Wary of 'Carry Hard' Blueprint," Defense Week, 13 February 1989, 1). In addition, as Les Aspin pointed out, carry hard had no constituency in the Congress and introducing another basing mode into the ICBM modernization debate would have further complicated reaching an agreement on the issue (Les Aspin, "What the Air Force Ought to Know About What the Congress Thinks About ICBM Modernization," address to the Air University, Maxwell AFB, Alabama, 21 March 1989, 11).

¹²Aspin, "What the Air Force Ought to Know," 11.

¹³The Discussion Group on Strategic Policy, Detering Through the Turn of the Century: A Report of the Discussion Group on Strategic Policy (Washington, D.C.:

Peacekeeper rail garrison was "not sufficient as the sole means of ICBM modernization," they felt that "a judicious approach would be, in the short run, to fund continued research on rail garrison basing and to plan on redeployment of MX missiles from silos to rail garrison later in the next decade."¹⁴

Finally, the results of the 1988 general election held out the promise of greater bipartisanship. Because the Republicans retained control of the White House and the Democrats both houses of the Congress, many who earlier had eschewed compromise on ICBM modernization, among other issues, while hoping that their party would control both branches of the government in 1989 now were more favorable toward it. Representative Aspin expressed this mood in a January 1989 address to the National Press Club when he stated that:

There is an air of expectancy . . . , a feeling that business will be done differently in Washington.

In fact, a new spirit of bipartisanship in foreign and national security policy is being talked about and the talk seems much more substantial than the usual political

Center for Strategic and International Studies and Johns Hopkins Foreign Policy Institute, 1989), 19-20. Again, the discussion group apparently included carry-hard basing as an alternative acceptable to a Dukakis administration.

¹⁴Ibid., 16.

honeymoon patter.¹⁵

Given the possibility of a reprieve for their weapon system, the SICBM's supporters naturally sought to capitalize on the opportunity. Diminishing defense budgets, however, continued to make the SICBM's cost unattractive, even though the missile's price tag continued to decline. In November 1988, BMO appraised the cost of 500 SICBMs deployed at Minuteman launch sites to be \$31.1 billion, while a February 1989 Rand study commissioned by the Congress put the missile's cost at \$32.8 billion. Both assessments were well below DOD's August 1988 estimate of \$36.4 billion.¹⁶ Even less attractive was the prospect of simultaneously funding two mobile ICBMs in addition to SDI, the B-2, and various other strategic and conventional programs. "There is one issue that could upset all hopes of bipartisanship," Aspin warned. "That is the overall question of the

¹⁵Les Aspin, "Strategic Policy Making for the Next Decade," address before the National Press Club, 11 January 1989, 1.

¹⁶See, respectively, David J. Lynch, "Price of Iffy Midgetman Drops," Defense Week, 28 November 1988, 1 and David J. Lynch, "Report Puts Midgetman Cost Below Official Figure," Defense Week, 21 February 1989, 1-2. As Lynch pointed out, the difference between the two figures primarily was due to estimates regarding production and maintenance of the missile's guidance system.

budget and the deficit."¹⁷

In order to increase the political acceptability of a two-missile compromise and save the SICBM from termination, Aspin proposed "a long-range approach to planning and financing strategic force modernization."¹⁸ First of all, every category of funding--development, procurement, operations, and maintenance--for every planned and existing offensive and defensive strategic system would be placed in one pot. This amounted to \$31 billion in 1989. Second, Aspin suggested fixing the amount spent on strategic systems at the 1989 level, adjusted for inflation, for the next ten years. Finally, trade-offs would be made within this pool of money and weapon systems to develop, procure, operate, and maintain the nation's various strategic systems over the next decade.¹⁹ The idea, as Aspin explained it, was to sequence these programs to avoid too many peaking at any one time.

Every weapon system has a funding profile that looks like the familiar bell-shaped curve. Spending starts slow, swells in the middle and tails off at the end. . . . In a 10-year plan, as one program begins to tail off, another can

¹⁷Aspin, "Strategic Policy Making," 2.

¹⁸Les Aspin, "Aspin Proposes 10-Year Strategic Program," news release, 11 January 1989.

¹⁹Aspin, "Strategic Policy Making," 5.

be fit in and funded. The sequencing of programs becomes a prime consideration. The question is no longer merely either-or. It is also sooner or later.²⁰

Although Aspin's approach permitted a variety of trade-offs,²¹ his preference, as one might expect, was to give first priority to "fielding a truly survivable land-based missile"--the SICBM--beginning in 1995.²² As he pointed out, \$215 billion was spent on strategic nuclear weapons during the Reagan administration. However, 60 percent of that amount was invested in the bomber force--first the B-1B and then the B-2--and almost 25 percent went to SLBMs and submarines, while just 16 percent was spent on ICBMs, the most vulnerable leg of the triad.²³ Aspin's second priority was completing the Trident submarine and missile programs by commissioning one or two boats per year.²⁴

In order to afford these programs, Aspin suggested slowing procurement of the B-2 bomber--"technical

²⁰Ibid., 6.

²¹For an analysis of six ICBM modernization options, see Les Aspin, "Living with a Flat Strategic Budget: Modernization and Force Structure Options," defense analysis, 7 February 1989.

²²Aspin, "Strategic Policy Making," 6.

²³Ibid., 3.

²⁴Ibid., 7.

challenges in the program mean there is going to be some slip in any case," he argued--while holding SDI funding at the 1989 level through 1996. As for rail garrison, its deployment would be postponed. "R-and-D funding would be kept at a low level through 1993, then boosted to produce the first significant deployment of the system in 1996."²⁵

While the aforementioned changes constituted a favorable turn of events for the SICBM, the Air Force saw them as a threat to rail-garrison basing and the deployment of additional Peacekeepers. Scowcroft's views on ICBM modernization and other defense issues, for example, were sufficiently worrisome to warrant the Secretary of the Air Force's staff group assembling a 50-page report containing a number of his essays, analyses of the views expressed in those writings, and predictions concerning their impact on the Air Force and its programs. Regarding Peacekeeper rail garrison, the staff group concluded that it "may be the first program to come under attack." Therefore, the Air Force "must be able to articulate the advantages of this system from a survivability standpoint."

In addition, the problems former Senate Armed

²⁵Ibid.

Services Committee chairman John Tower encountered following his nomination to become Secretary of Defense left the Air Force without full representation at the highest levels of government during the crucial first months of the new administration. Tower, whose nomination had been delayed for several weeks awaiting completion of an FBI investigation regarding allegations of his womanizing, drinking, and providing insider information to defense contractors, soon found himself mired in months of hearings before his former committee. During that period, DOD essentially was leaderless--Tower was preoccupied with his confirmation hearings while most of the department's other political appointments were delayed pending the fate of his nomination--and little substantive work was being accomplished.²⁶

When the SASC finally voted on Tower's nomination, it did so along party lines and recommended against confirmation. As Sam Nunn, the committee's chairman, put it, "[Tower's] history of excessive drinking is such that he would not be selected to command a missile wing, a SAC bomber squadron or a Trident missile submarine.

²⁶See, for example, Tom Morganthau with Howard Fineman, Eleanor Clift, and Ann McDaniel, "Tower's Troubles," Newsweek, 6 March 1989, 16-22.

Leadership must be established from the top down."²⁷ On 9 March, the Senate followed the SASC recommendation and voted 47-53 to reject Tower's nomination.²⁸ Although this episode threatened to damage the bipartisan atmosphere about which Aspin had spoken just two months earlier, Dick Cheney's expeditious confirmation as Secretary of Defense helped allay the situation. Nominated the day after Tower was defeated, Cheney was confirmed by a vote of 92-0 just one week later.²⁹

In light of the above, rail garrison's supporters understandably were concerned that DOD's silence would be mistaken as a loss of interest in the weapon system. To keep the issue alive, General Welch--with the approval of acting Defense Secretary William Taft IV, Brent Scowcroft, and JCS chairman Adm. William Crowe--went to

²⁷Quoted in Ibid., 16.

²⁸For a complete account of the Tower confirmation hearings, see Congress, Senate, Committee on Armed Services, Nomination of John G. Tower to be Secretary of Defense, 101st Cong., 1st sess., 25, 26, and 31 January and 1 and 23 February 1989.

²⁹See Congress, Senate, Committee on Armed Services, Nominations Before the Senate Armed Services Committee, First Session, 101st Congress, 101st Cong., 1st sess., 14 and 16 March 1989, 1-91. Cheney was White House Chief of Staff during the Ford administration and a member of the House of Representatives since 1979, serving as chairman of the Republican Policy Committee, chairman of the Republican Conference, minority whip, and as a member of the House Intelligence Committee.

Capitol Hill to discuss ICBM modernization with members of the Congress. According to Welch, he was "pulsing the system" to determine which options, if any, would be acceptable before recommending a course of action to the new Secretary of Defense. One such option, rebasing the 50 Peacekeepers already deployed in exchange for the deployment of 300-500 SICBMs, generated considerable interest.³⁰ Senator Gore, for example, called it "very promising,"³¹ while Les Aspin declared that "the ICBM problem is now soluble."³² Aspin, however, also warned that deploying more than 50 Peacekeepers would be unacceptable to many members of the House. "Keeping the number at 50 is the sine qua non for success," he argued. He also raised an issue that had affected ICBM modernization before and soon would again--the sequence of deployment. "The problem," he noted, "is nobody is going to want to be second, because they fear that they

³⁰Larry D. Welch, interview by author, 24 June 1991, Written notes, Institute for Defense Analyses, Alexandria, VA. Also see the account in Bob Woodward, The Commanders (New York: Simon & Schuster, 1991), 74-80.

³¹Quoted in George C. Wilson, "Air Force Acts to Break ICBM Impasse," Washington Post, 24 March 1989, A1.

³²Aspin, "What the Air Force Ought to Know," 13.

are going to be left out."³³

On 24 March, Welch's activities were reported on the front page of the Washington Post,³⁴ and the next day, Cheney, at his first news conference as Defense Secretary, publicly admonished the general for "inappropriate . . . free-lancing."³⁵ Without privately discussing the matter with Welch first, Cheney told the press that:

it's inappropriate for a uniformed officer to be in a position where he's in fact negotiating an arrangement. I'll make known to him my displeasure. Everybody's entitled to one mistake.³⁶

While Cheney's actions generally were interpreted as an attempt to assert his control over the Pentagon--his transition team, for example, warned that the Air Force was "totally out of control" and that Welch "was

³³Ibid., 12-13. On the first point, also see a February letter signed by Aspin and 19 other House Democrats urging Bush to maintain the 50-missile cap on deployed Peacekeepers (Nicholas Mavroules, Les Aspin, Les AuCoin, Charles Bennett, Norm Dicks, Marvin Leath, Albert Bustemante, Barney Frank, John Spratt, Dave McCurdy, Beverly Byron, Vic Fazio, Frank McCloskey, Barbara Boxer, Steny Hoyer, Ed Markey, Thomas Downey, Tony Coelho, Marty Russo, and Richard Gephardt to George Bush, 6 February 1989).

³⁴Wilson, "Air Force Acts," A1.

³⁵George C. Wilson, "Cheney Scolds Air Force Chief for Hill Contacts on Missiles," Washington Post, 25 March 1989, A1.

³⁶Ibid.

disdainful of civilians"³⁷--many considered them unfair. Admiral Crowe, for one, was particularly upset by the incident. As Bob Woodward reported in The Commanders, "Crowe was almost beside himself. He had no advance warning that the new Secretary was going to dress down one of the chiefs publicly."³⁸ For his part, Les Aspin called the incident "a bum rap," explaining that:

Welch wasn't trying to put a deal together. He made plain he wasn't speaking for the President. He was just exploring the outlines of a possible compromise with the Congress with no intention of cutting the new secretary out of the deal.³⁹

Moreover, Aspin warned that "Cheney's comments about Welch could chill contacts between the military and the Congress at a time when those contacts are not adequate as it is."⁴⁰

On 25 April, the Bush administration announced its long-awaited amendments to Reagan's final defense budget. In accordance with the 14 April budget agreement,⁴¹ a

³⁷Woodward, The Commanders, 74.

³⁸Ibid., 78.

³⁹Les Aspin, "START and Land-Based ICBMs: The Need for Modernization," address before an unidentified audience, 30 March 1989, 1.

⁴⁰Ibid., 2.

⁴¹After nine weeks of negotiations, an agreement aimed at reducing the federal budget deficit to the Gramm-Rudman-Hollings target of \$100 billion for FY 1990

total of \$295.6 billion in new budget authority was requested for FY 1990, \$10 billion less than the Reagan administration sought in January.⁴² Included was \$1.1 billion for Peacekeeper rail garrison--\$774.2 million for research and development, \$222.6 million for advance procurement, and \$116.5 million for military construction--just \$100 million less than previously requested.⁴³ In addition, and contrary to the Reagan administration's plans, the Bush defense budget also

was reached. Although support for the agreement was by no means unanimous, it was hailed by many as an important first step toward future bipartisan efforts to deal with this long-standing problem (see, for example, David E. Rosenbaum, "Bush and Leaders Reach Agreement on Budget Outline," New York Times, 15 April 1989, 1 and Paul Blustein, "Bush, Hill Leaders Unveil Budget Pact," Washington Post, 15 April 1989, 1). As House Budget Committee chairman Leon Panetta put it, "after eight years of confrontation and mistrust on budget issues, the most important aspect here is that we've built a spirit of cooperation between the Congress and the administration" (Ibid.).

⁴²Department of Defense, Office of the Assistant Secretary of Defense for Public Affairs, "Amended FY 1990/FY 1991 Department of Defense Budget," news release, 25 April 1989. Also see Cheney's testimony regarding the revised budget request in Congress, House, Committee on Armed Services, National Defense Authorization Act for Fiscal Year 1990--H.R. 2461, Authorization and Oversight, 101st Cong., 1st sess, 25 April 1989.

⁴³David J. Lynch, "Cheney Tells Where Budget Ax Fell," Defense Week, 1 May 1989, 5. The Reagan administration requested the same amounts for rail-garrison development and procurement but \$219.1 million for military construction. See Department of Defense, Annual Report to the Congress, Fiscal Year 1990 (Washington, D.C.: GPO, 17 January 1989), 187.

included \$100 million for the SICBM.⁴⁴ As Cheney explained it, "the basic theory is that we will first build and deploy rail garrison, keep the Small ICBM alive, come in behind the rail garrison procurement with the Small ICBM, and end up, in fact, ultimately deploying both systems."⁴⁵ In contrast, the B-2 program was rescheduled to "reduce concurrency with development," the SDI budget was cut by \$1 billion from the Reagan administration's request of \$5.6 billion, and numerous conventional weapons programs were either rescheduled or canceled, including the Marine Corps' V-22 Osprey and the Navy's F-14D Tomcat.⁴⁶

While the small missile's inclusion in the revised defense budget was a victory for the SICBM's supporters, it was a major defeat for the new Defense Secretary. Just one week earlier, Cheney recommended canceling the SICBM and rebasing the 50 silo-based Peacekeeper in the rail-garrison mode.⁴⁷ As Cheney explained it, his decision was a budgetary one. "I made that recommendation because it was the low-cost option, the

⁴⁴DOD, "Amended Defense Budget," 3.

⁴⁵HASC, Defense Authorization Act, FY90, Authorization and Oversight, 10.

⁴⁶DOD, "Amended Defense Budget," 4-5.

⁴⁷Smith, "Cheney Urges Bush, A1.

cheapest way to get mobility built into our land-based ICBM force."⁴⁸ According to the Air Force's latest estimates, it would have cost \$5.4 billion to rebase the Peacekeeper, while completing the small missile's development and deploying 500 SICBMs at Minuteman sites would have cost \$23.6 billion. Neither price, it should be noted, included operations and maintenance once the missiles were fielded.⁴⁹

Once Cheney's recommendation became known, the SICBM's supporters swung into action, warning the administration against funding rail garrison without the small missile. Les Aspin, for example, told Bush that canceling the SICBM "would be a blow to chances for bipartisanship in national security and more importantly to the chances" for a START agreement,⁵⁰ while Sam Nunn argued that funding Peacekeeper rail garrison without the SICBM would be "a very hard sell" in the Congress.⁵¹ Within the administration, Brent Scowcroft was the

⁴⁸HASC, Defense Authorization Act, FY90, Authorization and Oversight, 8.

⁴⁹Larry D. Welch, address before the Institute for Foreign Policy Analysis, 9 March 1989.

⁵⁰Quoted in R. Jeffrey Smith and David Hoffman, "Bush Urged to Choose Two Mobile Missiles," Washington Post, 20 April 1989, A16.

⁵¹SASC, Nominations, 19 April 1989, 173.

SICBM's most important champion, counterbalancing Cheney's influence on the issue. As Cheney explained it on NBC TV's "Meet the Press," while he recommended Peacekeeper rail garrison over the SICBM, Scowcroft made the opposite recommendation. "The president," Cheney reported, "basically said 'Try to do both.'"⁵² This decision was codified by NSM-14 on 14 June 1989.

In addition to funding the SICBM as part of its defense budget, the Bush administration also announced that it would forgo the deployment of additional Peacekeepers. "The proposal," Cheney told the HASC, "is not to deploy an additional 50, but to take the 50 that are currently in silos and put them into the rail garrison system. At the end of what we propose, there would only be 50 Peacekeepers, all rail mobile."⁵³ Doing so largely was a recognition of political reality. By

⁵²Quoted in Peter Almond, "Bush Wants to Build MX and Midgetman," Washington Times, 24 April 1989, A3. This decision also was consistent with advice from the State Department which argued that a mix of missiles would help build a consensus for ICBM modernization and improve the chances for concluding and ratifying a START agreement (Michael R. Gordon, "Officials Say Bush Will Back a Force of Mobile Missiles," New York Times, 22 April 1989, A10).

⁵³HASC, Defense Authorization Act, FY90, Authorization and Oversight, 69. In March, General Welch made a similar announcement before the Institute for Foreign Policy Analysis, stating that "the Air Force and I are not going to go with 50 additional MX missiles. We are planning to rebase the first 50 MX in rail garrison" (Welch, IFPA address, 9 March 1989).

that point in time, even Peacekeeper's strongest supporters, like Bill Dickinson, realized that the Congress was not "in the mood to buy a second 50 MXs."⁴

Although the administration's actions were designed to create an atmosphere conducive to a two-missile compromise, the path toward consensus was by no means free of further stumbling blocks. For example, by announcing that it wouldn't request the deployment of additional Peacekeepers, the administration enhanced the prospects for a liberal-conservative alliance against the SICBM, especially in the House of Representatives. Liberals, many of whom actually preferred that neither ICBM be deployed but supported the SICBM's development as the lesser of two evils, began focusing their attention on canceling the small missile, a weapon system that could have added hundreds of highly-accurate warheads to an arsenal that they felt was already more than adequate. The liberals' potential partners in this endeavor were those conservatives opposed to the SICBM because of its cost. Thus, as Pat Towell described it, a "crazy-quilt

⁴Congress, House, Committee on Armed Services, Procurement and Military Nuclear Systems Subcommittee, National Defense Authorization Act for Fiscal Year 1990--H.R. 2461, Procurement of Aircraft, Missiles, Weapons and Tracked Combat Vehicles, Ammunition, and Other Procurement, 101st Cong., 1st sess., 16 March 1989, 110.

alliance" began taking shape.⁵⁵

Concerned about the coalition's impact, the SICBM's supporters called for stronger presidential leadership. Nunn, for example, warned that the votes necessary to sustain the two-missile compromise "are not there on the House and Senate sides unless the administration makes a stronger, more forceful, more cogent, more logical case for its land-based missile program."⁵⁶ For his part, Aspin complained that the administration was sending mixed signals regarding its support for both missiles and concluded that "the success of the program now rests on arguments only a president can make."⁵⁷

The SICBM's supporters also were concerned about the small missile's funding profile and the length of time

⁵⁵Pat Towell, "Party Battle Lines Are Fuzzy in House Defense Debate," Congressional Quarterly Weekly Report, 17 June 1989, 1483. The coalition's emergence also is addressed in Susan R. Rasky, "Coalition Opposes Funding of Missile," New York Times, 24 May 1989, A22; Andrew Rosenthal, "A 'Guide for the Perplexed' on Missiles: Personalities, Economics and Expediency," New York Times, 14 June 1989, A23; Helen Dewar, "Bush's 'Two-Missile' Proposal Jeopardized," Washington Post, 19 June 1989, A4; and Pat Towell, "The Politics of Procurement Creates New Alliances," Congressional Quarterly Weekly Report, 24 June 1989, 1557.

⁵⁶Sam Nunn, address before the Institute for Foreign Policy Analysis, 13 June 1989.

⁵⁷Les Aspin, "President Bush and ICBM Modernization," address before the Institute for Foreign Policy Analysis, 6 June 1989, 3-4.

between rail garrison's deployment and that of the SICBM. Although the Bush administration announced that it would request \$100 million for the small missile in 1989 and pledged to request \$200 million, \$250 million, \$300 million, and \$350 million, respectively, during the rest of its five-year defense plan,⁵⁸ many considered this level of funding inadequate, prompting Rep. Dave McCurdy (D-OK) to predict that it would not be acceptable to either the HASC or the House.⁵⁹ Likewise, some were concerned that rail garrison's 1992 IOC date was too far removed from the SICBM's IOC of 1997 and that the latter might be forgotten once the former was deployed. To avoid such an outcome, several of the SICBM's supporters suggested linking rail garrison's deployment to progress on the small missile, perhaps in an arrangement similar to the 1983 Price Amendment.⁶⁰

To increase the two-missile compromise's chances for success, Nunn suggested that the administration "demonstrate that it is fully committed to the deployment

⁵⁸HASC, Defense Authorization Act, FY90, Authorization and Oversight, 8.

⁵⁹Dave McCurdy, address before the Institute for Foreign Policy Analysis, 1 May 1989.

⁶⁰See, for example, Aspin's comments in HASC, Defense Authorization Act, FY90, Authorization and Oversight, 67 and William Cohen, address before the Institute for Foreign Policy Analysis, 3 May 1989.

of the Midgetman and is not going to drop Midgetman once the 50 MX are rebased in the rail garrison mode." It also would be helpful, he noted, if the administration's ICBM modernization plans and arms control position were "in sync."⁶¹ In response to these and similar pressures, the administration restated its commitment to the deployment of both mobile missiles and agreed to request an additional \$947 million for the SICBM during fiscal years 1992-1994.⁶² In addition, President Bush agreed to drop the administration's proposed ban on mobile ICBMs if the Congress funded both missile programs.⁶³

In addition to a creating an atmosphere conducive to a liberal-conservative alliance against the small missile, the administration's decision to forgo the

⁶¹Nunn, IFPA address, 13 June 1989. Although the U.S. was developing two mobile ICBMs, its position at the START negotiations since November 1985 was to ban these systems.

⁶²Dick Cheney to Les Aspin, 15 June 1989.

⁶³See, for example, Ann Devroy and Helen Dewar, "Bush Pledges Major Increase in Midgetman Missile Funds," Washington Post, 21 June 1989, A8 and Paul Bedard, "Bush Offers Concession if Missiles Are Approved," Washington Times, 21 June 1989, A4. In late September, during the Wyoming ministerial between Secretary Baker and Foreign Minister Shevardnadze, the ban was dropped (U.S. Arms Control and Disarmament Agency, Office of Public Affairs, "The Strategic Arms Reduction Treaty: Chronology," fact sheet, 29 July 1991, 13). In May 1990, a 1,100 warhead limit on mobile ICBMs was agreed to by the U.S. and the U.S.S.R. (Ibid., 15).

deployment of additional Peacekeepers also resulted in many Air Force leaders losing interest in rail-garrison basing. While some, like Welch, argued that they "would rather have those first 50 Peacekeepers . . . on the rails than in the silos"⁶⁴ and others continued to hope that additional Peacekeepers might be deployed in the future,⁶⁵ a growing number of Air Force officers didn't think the deployment of more missiles was likely and opposed spending more than \$5 billion to rebase the existing force given the service's other funding requirements, especially the B-2.

The first public indication that the Air Force's support for Peacekeeper rail garrison was waning occurred shortly after the Bush administration revealed its plans to deploy two mobile ICBMs while rescheduling the B-2 program. "We have problems with the B-2," Cheney announced at the time, "and a lot of work is required before we're going to be in a position to be able to say

⁶⁴HASC, Defense Authorization Act, FY90, Procurement, 113.

⁶⁵Of those Air Force officers who were not yet prepared to abandon all hope of eventually deploying more than 50 Peacekeepers, a number noted that the silos vacated when the first 50 were redeployed could house additional missiles at some later date. Others suggested that once the first 50 were rebased and the rail-garrison concept was proven viable that the question of deploying additional Peacekeepers in the rail-garrison mode could be revisited.

how much it is going to cost or when it will be available."⁶⁶ It was in this atmosphere that General Chain--previously one of rail garrison's biggest champions--declared the B-2 his top priority and openly questioned whether the U.S. could afford two mobile ICBMs.⁶⁷ In addition, the general threatened to testify against the START Treaty if the Congress didn't support the B-2 while noting that his "support of arms control is not contingent on ICBM modernization." Keeping the Peacekeeper force in silos, he said, "does not bother me at all."⁶⁸

Although Chain's views were shared by others in the Air Force leadership, he was reprimanded for publicly contradicting official administration policy. As a result, his subsequent declarations supported the two-missile program. A little more than a week later, for example, he made the following comments during an address before the Institute for Foreign Policy Analysis:

In the post START environment, a mobile ICBM force will be very important. I will not support a START treaty unless strategic

⁶⁶HASC, Defense Authorization Act, FY90, Authorization and Oversight, 7.

⁶⁷Michael R. Gordon, "Chief of Air Command Questions Bush Plan to Cut Nuclear Missiles," New York Times, 5 May 1989, 1.

⁶⁸Ibid., 4.

modernization goes forward, *including mobile ICBM deployments*. I also believe that the Joint Chiefs of Staff will unanimously oppose the START treaty as now configured unless the full strategic modernization program as proposed by the President is agreed to.⁶⁹

Since the Bush administration didn't present its revised defense budget to the Congress until 25 April, mark up of the authorization bill began much later than usual in 1989. However, as was the case the two previous years, the size of the budget, set by the 14 April budget agreement, was not an issue, although what to fund within that budget certainly was.

While big-ticket strategic systems were especially vulnerable to reductions or cancellation as the defense budget continued to shrink, the administration's ICBM modernization request was fully funded by both armed services committees.⁷⁰ In the HASC, rail garrison and the small missile survived separate amendments by Ron Dellums (D-CA) to eliminate all funding for both weapon systems, the former by a vote of 10-42 and the latter 12-

⁶⁹John T. Chain, address before the Institute for Foreign Policy Analysis, 15 May 1989. *Italics added.*

⁷⁰See Congress, House, Committee on Armed Services, National Defense Authorization Act for Fiscal Years 1990-1991, 101st Cong., 1st sess., H. Rept. 101-121, 1 July 1989 and Congress, Senate, Committee on Armed Services, National Defense Authorization Act for Fiscal Years 1990 and 1991, 101st Cong., 1st sess., S. Rept. 101-81, 19 July 1989.

39.⁷¹ For its part, the SASC applauded the Bush administration's "efforts to structure a sound ICBM modernization program" and recommended "full authorization of the requested amounts."⁷² In contrast, the House panel reduced the administration's SDI request by \$1.1 billion and the B-2 by \$800 million, while the Senate committee trimmed each program by \$300 million.⁷³

The Two-Missile Compromise Begins to Unravel

Although the two-missile compromise emerged from the armed services committees intact, it began to unravel on the House floor during a series of votes that initially protected both missiles and then dramatically reduced their funding. On 26 July, the House of Representatives considered five amendments concerning ICBM modernization. First, Ron Dellums argued that the triad's synergism made mobile ICBMs unnecessary and recommended terminating both Peacekeeper rail garrison and the SICBM. His amendment was defeated on a voice vote. Next, Dennis Hertel tried to eliminate all funding for Peacekeeper rail garrison

⁷¹Pat Towell, "Saving Some Projects, Panel Bites the Funding Bullet," Congressional Quarterly Weekly Report, 1 July 1989, 1640.

⁷²SASC, Defense Authorization Act, FY90/91, 118.

⁷³HASC, Defense Authorization Act, FY90/91, 7 and 10 and SASC, Defense Authorization Act, FY90/91, 67 and 129.

for a third consecutive year. Once again, his amendment was defeated, this time by a vote of 168-253. A third amendment by Barney Frank to terminate the small missile also was defeated 168-254.⁷⁴

Although the House soundly rejected the Dellums, Hertel, and Frank amendments, thereby retaining full funding for both missiles, Peacekeeper rail garrison was not as fortunate during the next vote. Citing rail garrison's vulnerability to surprise attack, the possibility that dispersing the trains could escalate rather than stabilize a crisis, the program's concurrency, and the need to provide the START negotiators with adequate bargaining leverage while hedging against the possibility that one or both mobile ICBMs might eventually be banned, John Spratt, a respected moderate on the House Armed Services Committee, recommended eliminating all but \$600 million in research and development funding for Peacekeeper rail garrison, thereby linking rail garrison and the small missile more closely together by delaying the former's deployment and improving the latter's chances for increased funding

⁷⁴Congress, House, National Defense Authorization Act, Fiscal Year 1990, 101st Cong., 1st sess., H.R. 4739, Congressional Record, vol. 135, no. 102, daily ed. (26 July 1989), H4278-H4330.

during conference.⁷⁵ As Norm Dicks put it:

I think we need to move down the track with both Midgetman and rail garrison. But the way the funding is laid out by the administration, all the money is on rail garrison and very little on Midgetman.⁷⁶

Despite what many considered a tacit agreement between the two missiles' supporters that both ICBMs should be fully funded, a last minute letter from President Bush that called the two-missile program "an integrated and inseparable whole" and warned against "pressures to play one modernization program against another,"⁷⁷ and minimal promotion of the amendment by its sponsor,⁷⁸ the Spratt Amendment was approved by a vote of 224-197.⁷⁹ Forty-five Democrats and one Republican who voted against the Hertel Amendment earlier that day also voted for the Spratt measure, thereby ensuring its success. Among those voting for both were supporters of

⁷⁵Ibid., H4332. Also see Spratt's comments in Rowan Scarborough, "Spratt Sorry He Blocked MX, Hopes Damage Will Be Corrected," Washington Times, 31 July 1989, A7.

⁷⁶House, Congressional Record, 26 July 1989, H4334.

⁷⁷George Bush to Les Aspin, 24 July 1989.

⁷⁸As Spratt's legislative aide reported, they did little more than send a "Dear Colleague" letter in support of the amendment (Bob DeGrasse, interview by author, 13 September 1991, Written notes, Longworth House Office Building, Washington, D.C.).

⁷⁹House, Congressional Record, 26 July 1989, H4335-4336.

the two-missile compromise like Dicks and McCurdy.⁸⁰

Although Spratt's victory came as a surprise to many members of the House, rail garrison's opponents clearly were pleased by the outcome. As one congressional staffer put it, "they were very smug about their victory and were laughing and patting each other on the back."⁸¹ Meanwhile, rail garrison's supporters felt betrayed--their program had been cut almost in half after they supported full funding for the SICBM--and immediately began planning their revenge with liberals like Frank and Dellums.⁸² The next day, Bill Dickinson moved to recommit the defense authorization bill and introduced an amendment that eliminated all funding for the SICBM from

⁸⁰"House Votes 169 and 171," Congressional Quarterly Weekly Report, 29 July 1989, 1994-1995. The Spratt vote may have been influenced by Marshal Akhromeyev's announcement several days earlier that the Soviet Union might be willing to eliminate the SS-24 if the U.S. didn't pursue Peacekeeper rail garrison. See R. Jeffrey Smith, "Soviet Advisor Hints at Potential Mobile Missile Deal," Washington Post, 24 July 1989, A18.

⁸¹Andy Ellis, interview by author, 13 December 1991, Written notes, House Armed Services Committee, Washington, D.C. This mood was confirmed by an arms control lobbyist who also was present during the vote (Kevin Knobloch, interview by author, 6 December 1991, Written notes, Union of Concerned Scientists, Washington, D.C.).

⁸²Ellis, interview, 13 December 1991.

the defense budget.⁸³ Calling the Spratt Amendment "too clever by half," Dickinson argued that:

Our Republican act of good faith, keeping an agreement, as we understood it, was turned against us. The result is that we are going to take out the money for the Midgetman.⁸⁴

With the once prospective liberal-conservative alliance now a reality, the amendment's outcome was a foregone conclusion. "The handwriting was on the wall," one participant noted. "There was no question it would pass."⁸⁵ After just minutes of debate--and with many in the House chanting "vote, vote, vote"--Dickinson's amendment was approved by an overwhelming majority.⁸⁶ One congressional staffer, likening the House's mood to "a lynching of Midgetman," couldn't recall a single Republican who voted against the amendment. Another estimated that 280-300 members of the House probably were in favor of the measure. Masterfully, Aspin managed to avoid a recorded vote, thereby allowing those who had changed their minds and voted against the SICBM to change

⁸³Congress, House, National Defense Authorization Act, Fiscal Year 1990, 101st Cong., 1st sess., H.R. 4739, Congressional Record, vol. 135, no. 103, daily ed. (27 July 1989), H4445.

⁸⁴Ibid., H4445-H4446.

⁸⁵Ellis, interview, 13 December 1991.

⁸⁶House, Congressional Record, 27 July 1989, H4447.

them back in the future.

Afterwards, Spratt said he was sorry he offered his amendment and hoped that the damage done could be repaired in conference.⁸⁷ Aspin, who opposed Spratt's measure but was blamed by rail garrison's supporters for not doing enough to stop it, may have been hindered in his efforts to do so by yet another confrontation with liberal members of the House regarding his support for the administration's ICBM modernization plans. In Les AuCoin's words:

[Aspin] got a very clear calling card. It was certainly a reminder . . . that there was an understanding within the Democratic Caucus that deals on strategic arms issues weren't going to be made without consultation.⁸⁸

As one astute observer put it, "in the political chemistry of the House, the MX missile and Armed Services Chairman Les Aspin are hypergolic: When the two combine, combustion occurs."⁸⁹

In addition to the Spratt Amendment, on 26 July the House limited to 50 the number of Peacekeepers that could be deployed in any basing mode, thereby codifying what

⁸⁷Scarborough, "Spratt Sorry," A7.

⁸⁸Quoted in Tom Kenworthy, "House Democrats Balk at Missile Deal," Washington Post, 27 April 1989, A4.

⁸⁹Pat Towell, "MX: Ballistic Issue for Democrats," Congressional Quarterly Weekly Report, 29 April 1989, 977.

many felt was the spirit of the 1985 cap and recent Bush administration statements that it would not pursue the deployment of additional Peacekeepers.⁹⁰ Although the measure's opponents argued that a formal cap was unnecessary given the prevailing budgetary and arms control pressures and could weaken the United States' position at the START negotiations,⁹¹ it passed by a vote of 259-160, with 31 Republicans voting for the amendment and 20 Democrats against it.⁹²

Overall, the House wreaked havoc on the Bush administration's FY 1990 defense budget request. In addition to reducing rail garrison's budget and eliminating all funding for the SICBM, the SDI budget was reduced to \$2.8 billion and spending for the B-2 was set at \$3.9 billion. Moreover, the House authorized more than \$500 million to complete development and begin production of the V-22 and \$1 billion to buy 12 new F-14Ds,⁹³ prompting an editor of the Washington Post to write that:

⁹⁰House, Congressional Record, 26 July 1989, H4336-H4341.

⁹¹Ibid., H4337.

⁹²"House Vote 172," Congressional Quarterly Weekly Report, 29 July 1989, 1994-1995.

⁹³"Defense Issues Checklist," Congressional Quarterly Weekly Report, 29 July 1989, 1973.

The House Democrats have a firm policy on defense: they are against the weapons but for the jobs. How else to explain the confetti they made of the defense authorization bill under their new leaders last week?⁹⁴

Regarding strategic modernization, Les Aspin declared the House's authorization bill "a Dukakis defense budget: No Midgetman, no rail MX, big cuts in SDI and [a] slow down [of] the B-2."⁹⁵

Restoring the Two-Missile Compromise

"If we have that sort of unraveling over here," Nunn remarked following the Spratt and Dickinson amendments, "we will go into conference with a totally illogical, unsound program in both bodies, and I believe that would be detrimental to both our national security and arms control."⁹⁶ The Senate, in other words, would have to act as a counterweight to the House. To that end, an

⁹⁴"Democrats on Defense (Cont.d)," Washington Post, 30 July 1989, C6. In June 1990, Speaker of the House Jim Wright and House Majority Whip Tony Coelho resigned during ethics investigations. Wright was replaced by House Majority Leader Tom Foley and Coelho was replaced by Bill Gray. Richard Gephardt took over from Foley as House Majority Leader.

⁹⁵Quoted in Pat Towell, "After Setbacks in the House, Bush Playing Catch-Up," Congressional Quarterly Weekly Report, 29 July 1989, 1972.

⁹⁶Congress, Senate, National Defense Authorization Act for Fiscal Years 1990 and 1991, 101st Cong., 1st sess., S. 2884, Congressional Record, vol. 135, no. 106, daily ed. (1 August 1989), S9211.

amendment by Carl Levin, Paul Simon, and Dennis DeConcini (D-AZ) that sought to reduce rail garrison's budget to the House's level and earmark the money saved for the F-14D, the Apache helicopter, and nuclear waste cleanup was tabled by a vote of 62-38.⁹⁷ As Senator Exon put it, the Levin Amendment, like the Spratt Amendment in the House, would have invited retaliation against the small missile and undermined any chance for consensus on ICBM modernization.⁹⁸ The Senate also approved the SASC's recommendations for the B-2 and SDI, while authorizing just \$255 million for continued development of the V-22 and no funding for new F-14s.⁹⁹

When the Congress began reconciling the defense authorization act, the House and Senate positions were much farther apart than usual. As one observer noted, the conference lacked "one of the usual lubricants of a smooth, orderly conference negotiation: a widely shared--albeit tacit--consensus over roughly where the negotiators should wind up on the key issues."¹⁰⁰ Thus,

⁹⁷Ibid., S9186-S9212.

⁹⁸Ibid., S9191.

⁹⁹"Defense Issues Checklist," 1973.

¹⁰⁰Pat Towell, "Conference Over Defense Bill: Test of Political Muscle," Congressional Quarterly Weekly Report, 7 October 1989, 2656-2657.

although informal negotiations began on 8 September, an agreement wasn't concluded until almost two months later, making the conference the longest in recent history.

When the authorization bill finally was completed, however, it more closely resembled the Senate's position regarding ICBM modernization, with the conferees agreeing to a \$1.05 billion pot of money for both Peacekeeper rail garrison and the SICBM.¹⁰¹ Within that amount, however, the Pentagon was prohibited from spending more than it had requested for any item in the ICBM modernization budget. Not more than \$874 million could be spent on Peacekeeper rail garrison and SICBM development, for example, and not more than \$226 million could be used for rail-garrison advance procurement.¹⁰² The conferees also retained the House's cap on deployed Peacekeepers.¹⁰³

Although many in the Congress considered the House's

¹⁰¹Congress, House, Conference Report, Authorizing Appropriations for Fiscal Year 1990 for Military Activities of the Department of Defense, for Military Construction, and for Defense Activities of the Department of Energy, to Prescribe Personnel Strengths for Such Fiscal Year for the Armed Forces and for Other Purposes, 101st Cong., 1st sess., H. Rept. 101-331, 7 November 1989, 52-53. Combining the money allowed both missiles' supporters to claim victory following the conference (Ellis, interview, 13 December 1991).

¹⁰²Conference, Authorizing Appropriations for FY90, 52-53.

¹⁰³Ibid., 33.

position on ICBM modernization a fluke, Dickinson's amendment helped restore almost all of the administration's request by holding reinstatement of the SICBM hostage to a substantial increase in rail garrison's budget. If the Spratt vote had been left unanswered, one committee staff member predicted, the conferees probably would have split the difference on rail garrison, perhaps in exchange for even greater funding for the small missile.¹⁰⁴ "By these actions," the conferees wrote, they were "strongly reiterat[ing] their support for the Administration's two-missile ICBM Modernization program."¹⁰⁵

A trade-off between strategic and conventional programs also appears to have played a role in the conference's outcome. With the Senate already agreeing to continue development of the V-22 for another year, attention was focused on the F-14D, the House's highest priority, thereby enhancing the Senate's bargaining power. "We were able to get more flexibility in the strategic areas," Nunn reported after the conference, "because we were willing to give a soft landing to the F-

¹⁰⁴Ellis, interview, 13 December 1991.

¹⁰⁵Conference, Authorizing Appropriations for FY90, 527.

14."¹⁰⁶ In doing so, almost \$1.2 billion was approved to purchase 18 new F-14Ds and pay the program's termination costs.¹⁰⁷ Two hundred and fifty-five million dollars was authorized for further development of the V-22.¹⁰⁸ The conferees also authorized \$3.6 billion for SDI, the first decline in the program's six-year history, and \$4.3 billion for the B-2, a sum closer to the Senate's position than the House's.¹⁰⁹

The Revolution of 1989 and Its Aftermath

While the FY 1990 defense budget was being debated, significant changes were underway in the Soviet Union and Eastern Europe. In February 1989, for example, the U.S.S.R. completed the withdrawal of its armed forces from Afghanistan.¹¹⁰ The next month, negotiations aimed

¹⁰⁶Quoted in Pat Towell, "Bush Team Takes a Hit on SDI, But Prevails on Other Items," Congressional Quarterly Weekly Report, 4 November 1991, 2964. John Isaacs, legislative director of the Council for a Livable World, an arms control advocacy group, made a similar observation in "The World Changes--The Defense Budget Doesn't," Arms Control Today 19, no. 10 (January 1990): 19-20.

¹⁰⁷Conference, Authorizing Appropriations for FY90, 33.

¹⁰⁸Ibid., 49.

¹⁰⁹Ibid., 49 and 453, respectively.

¹¹⁰Michael Dobbs, "Soviets Complete Pullout From War in Afghanistan," Washington Post, 16 February 1989, A1.

at reducing NATO and Warsaw Pact conventional forces to equal levels from the Atlantic to the Urals began in Vienna.¹¹¹ In June, free elections were held in Poland, forcing the Communist party to share power with the once-outlawed Solidarity trade union. Finally, in October, Erich Honecker was removed from power in East Germany.¹¹² These and similar events led Representative Aspin to declare the FY 1990 defense budget "the last deficit-driven budget." "What we're likely to face next year," he predicted, "is the first in a series of Gorbachev-driven defense budgets."¹¹³

Revolutionary change continued as 1989 drew to a close. November, for example, witnessed the collapse of the Berlin Wall--perhaps the most prominent symbol of the Cold War--and in December, Czechoslovakia installed a new cabinet with a noncommunist majority, while Nicolae Ceausescu was overthrown and executed in Romania.¹¹⁴ Moreover, the "Revolution of 1989" spilled over into the

¹¹¹Jesse James, "Conventional Forces Talks Open on Positive Note in Vienna," Arms Control Today 19, no. 3 (April 1989): 23.

¹¹²Bruce Nelan, "The Year of the People," Time, 1 January 1990, 49-50.

¹¹³Quoted in Pat Towell, "Triggering a Process of Triage, Conferees Pare Weapons," Congressional Quarterly Weekly Report, 11 November 1989, 3088.

¹¹⁴Nelan, "The Year of the People," 50 and 53.

new year. In 1990, member states of the Warsaw Pact began negotiating the removal of Soviet troops from their territory, Soviet republics began declaring their independence, and Germany was reunited.¹¹⁵

In response, the Congress held a number of hearings regarding the significance of these and other changes and their effect on U.S. national security and that of its allies--the HASC as part of a study that began in the summer of 1988 and the SASC during its annual hearings on the nation's security policy and strategy.¹¹⁶ Although

¹¹⁵See, respectively, Glenn Frankel, "East Europeans Seek Full Pullout of Soviet Troops," Washington Post, 19 January 1990, A14; Cary Goldberg, "Republic Secedes From Soviet Union," Washington Times, 12 March 1990, A1; and Marc Fisher, "A New Holiday for a New Germany," Washington Post, 4 October 1990, A1.

¹¹⁶The Defense Policy Panel's study began with hearings in July 1988 (Congress, House, Committee on Armed Services, Defense Policy Panel, The Impact of Gorbachev's Reform Movement on the Soviet Military, 100th Cong., 2d sess., 14 July 1988). Other hearings and reports prior to 1990 include Congress, House, Committee on Armed Services, Defense Policy Panel, General Secretary Mikhail Gorbachev and the Soviet Military: Assessing His Impact and the Potential for Future Changes, 100th Cong., 2d sess., 13 September 1988; Congress, House, Committee on Armed Services, Defense Policy Panel, Soviet Readiness for War: Assessing One of the Major Sources of East-West Instability, 100th Cong., 2d sess., December 1988; Congress, House, Committee on Armed Services, Defense Policy Panel, Gorbachev's Force Reductions and the Restructuring of Soviet Forces, 101st Cong., 1st sess., 10 and 14 March 1989; and Congress, House, Committee on Armed Services, Soviet Views on National Security Issues in the 1990s, 101st Cong., 1st sess., 21 July 1989. Beginning in 1987, the SASC started each session with hearings regarding some aspect of U.S.

there was general agreement prior to the events of 1989 that "Gorbachev's reform agenda for the military . . . had not resulted in any concrete, operational changes,"¹¹⁷ most analysts were reaching the opposite conclusion by early 1990. As one congressional report put it, "the consensus among those appearing before the panel was that a full-scale attack on Western Europe or another Afghanistan adventure seemed . . . improbable."¹¹⁸ For example, CIA Director William Webster, testified that "the Warsaw Pact threat to the United States and its NATO allies has been significantly reduced." Moreover, he concluded that this change was "probably already irreversible" in that "there is little chance that Soviet hegemony could be restored in Eastern Europe."¹¹⁹ As Webster put it:

national security policy and strategy. In 1988, for example, the committee focused on NATO strategy.

¹¹⁷Congress, House, Committee on Armed Services, Defense Policy Panel, The Fading Threat: Soviet Conventional Military Power in Decline, 101st Cong., 2d sess., 9 July 1990, 1.

¹¹⁸Ibid., 11.

¹¹⁹Congress, House, Committee on Armed Services, National Defense Authorization Act for Fiscal Year 1991--H.R. 4739, Authorization and Oversight, 101st Cong., 2d sess., 1 March 1990, 437-438. Also see Webster's testimony in Congress, Senate, Committee on Armed Services, Threat Assessment; Military Strategy; and Operational Requirements, 101st Cong., 2d sess., 23 January 1990, 57-68.

Even if a hardline regime were able to [gain and] retain power in Moscow, it would have little incentive to engage in major confrontations with the United States. New leaders would be largely preoccupied with the country's urgent domestic problems.¹²⁰

While most analysts agreed with Webster's assessment of the Soviet conventional threat, there was considerably more debate regarding its effect on the likelihood of nuclear war and the need for further strategic modernization. Although the Soviets continued to modernize their strategic nuclear arsenal--Webster, for example, testified that "the bulk of the evidence . . . shows a vigorous, broad-based modernization effort that is improving their overall strategic capabilities"¹²¹--there was a growing consensus that the threat of nuclear war was declining with the threat of conventional

¹²⁰HASC, Defense Authorization Act, FY91, Authorization and Oversight, 1 March 1990, 440.

¹²¹SASC, Threat Assessment, 23 January 1990, 58. Although Soviet strategic modernization was progressing more slowly than previously had been predicted--largely because of technical problems with the Blackjack bomber and the likelihood of a START agreement--it continued nonetheless. As Lt. Gen. Harry Soyster, Director of the Defense Intelligence Agency, told the SASC, "even after INF and expected START Treaty reductions, the Soviets will likely be able to satisfy their critical nuclear targeting requirements as effectively as with their current arsenal due to on-going force modernization" (Ibid., 63). During this period, the Soviets continued to deploy additional Blackjack bombers, SS-24 and SS-25 mobile ICBMs, Typhoon and Delta IV ballistic-missile submarines, and a new version of the SS-18 ICBM.

conflict and that the nation's strategic modernization efforts could be scaled back accordingly. Others, however, came to the opposite conclusion. These contrary interpretations were apparent in The Fading Threat, a report by the HASC's Defense Policy Panel. In that report, the panel's Democratic majority argued that:

The most likely scenario leading to nuclear war has always been escalation from a conflict in Europe. The risk of this possibility as well as lesser conflicts between the superpowers has been much reduced as the Soviet conventional threat has declined In short, a declining Soviet conventional threat means a reduced risk of nuclear war.¹²²

The panel's Republican members disagreed. Expressing their deep concern about the U.S.S.R.'s on-going strategic modernization program, they concluded that the "most obvious shortcoming" of the majority party's viewpoint was:

its conspicuous silence on the corollary to the idea that we should cut where the threat has diminished. If one endorses this theme, then it logically follows that we should maintain or increase spending in those areas where the threat has not diminished. At a minimum, there seems to be broad agreement that the Soviet strategic and space warfighting threats persist.¹²³

When the Bush administration revealed its FY 1991 defense budget on 29 January 1990, it reflected the

¹²²HASC, The Fading Threat, 16.

¹²³Ibid., 22.

latter assessment of the Soviet nuclear threat. While requesting \$295.1 billion in new budget authority--a 2.6 percent decrease after inflation--and seeking the termination of 20 conventional programs--including, once again, the V-22 and the F-14D--spending for strategic weapons increased.¹²⁴ Although Cheney agreed that an attack against Western Europe was "more remote than at any time in the postwar period," that Soviet defense spending was beginning to decline, and that the Soviet Union's armed forces were experiencing serious morale, nationality, and other problems, he also was quick to note that:

there is only one nation in the world capable of destroying [the United States] and that is the Soviet Union. They still retain massive nuclear forces targeted against the U.S. and our allies. They continue to modernize those forces in a very robust fashion.¹²⁵

Gen. Colin Powell, the new JCS chairman, concurred. In his view, the Soviet nuclear threat had not diminished sufficiently to warrant abandoning plans for further strategic modernization and warned that doing so could affect the joint chiefs' support for strategic arms

¹²⁴DOD, Annual Report, FY91, 9-10. For a complete listing of the programs the administration sought to terminate, see HASC, Defense Authorization Act, FY91, Authorization and Oversight, 6 February 1990, 26.

¹²⁵HASC, Defense Authorization Act, FY91, Authorization and Oversight, 6 February 1990, 5-6.

reductions. "If those modernization programs don't come to fruition in some form or another," Powell told the HASC, "then the Chiefs will have to take another look at the emerging START treaty."¹²⁶

Given this assessment, the administration increased its request for the B-2 bomber to \$5.5 billion and SDI's budget to \$4.5 billion,¹²⁷ although the former was reduced from a planned buy of 132 aircraft to 75 and the latter was reoriented toward the "brilliant-pebbles" concept to reduce its cost.¹²⁸ Among the strategic modernization programs, however, ICBM modernization received the largest percentage increase. The administration requested more than \$2.1 billion for Peacekeeper rail garrison, including almost \$1.2 billion to build seven Peacekeeper trains and provide advance

¹²⁶Ibid., 67.

¹²⁷See Cheney's testimony in Ibid., 28.

¹²⁸The B-2 program was restructured following a four-month review that examined the B-2 and five other aircraft. See HASC, Defense Authorization Act, FY91, Authorization and Oversight, 26 April 1990, 687-716. Although reducing the number of B-2s to be purchased cut the program's cost from \$75.4 billion to \$61.1 billion, it increased the aircraft's unit cost from \$530 million to \$815 million (Timothy McCune and Eric Rosenberg, "Cheney Unveils New Plans for Six Warplanes," Defense Week, 30 April 1990, 7). Regarding the SDI program, see David J. Lynch, "DoD Unveils Latest Strategic Defense," Defense Week, 12 February 1990, 3. The brilliant-pebbles concept was estimated to cost about \$55 billion versus previous estimates of \$115 billion for SDI (Ibid.).

procurement for nine more.¹²⁹ Funding for the SICBM was set at \$202 million.¹³⁰

As one might expect, many disagreed with the priorities contained in the Bush administration's defense budget, including members of the President's own party,

¹²⁹The funding request for Peacekeeper rail garrison is broken out in Congress, House, Committee on Armed Services, National Defense Authorization Act for Fiscal Year 1991, 101st Cong., 2d sess., H. Rept. 101-665, 3 August 1990, 105 and 169. The FY 1991 request included \$1.05 billion for the procurement of seven trains and \$133.9 million in advance procurement for nine more the next year. It also included \$158.7 million for initial spares and \$548.1 million for research and development. Military construction funds (\$268.6 million) account for the rest of the \$2.1 billion request. Peacekeeper rail garrison made considerable progress toward initial production during 1989 and was scheduled to reach its peak funding year in 1991. In February 1989, the Air Force published its Final Environmental Impact Statement for Peacekeeper rail garrison (U.S. Air Force, Final Environmental Impact Statement: Peacekeeper Rail Garrison Program [Washington, D.C.: U.S. Air Force, February 1989]). In July, a concrete and steel slug was ejected from a mock-up of the train's missile launch car to determine the dynamic loading effects of a launch on railroad tracks, the railbed, and the train's components. The test was 100 percent successful with better than expected results. In addition, by the year's end six "on-the-rails" exercises had been completed: three railroad familiarization exercises, a "red/blue team" security assessment, a 30-day habitability test of the train's launch control car, and a garrison egress/track generation exercise. On 29 November, eight Air Force bases were selected to host the rail-garrison system (Bernard E. Trainor, "50 MX Missiles Are to Be Shifted to Trains in 7 States," New York Times, 30 November 1989, B20).

¹³⁰See Secretary Cheney's testimony in HASC, Defense Authorization Act, FY91, Authorization and Oversight, 6 February 1990, 28.

a number of former high-ranking Defense Department officials, and several retired chairmen of the Joint Chiefs of Staff. For example, William Cohen and John McCain (R-AZ), two senior members of the Senate Armed Services Committee, argued that the administration's restructuring of the defense budget had not gone far enough and that too much money still was being earmarked for strategic programs. They proposed that the U.S. "actively pursue reciprocal restrictions with the Soviet Union to cut MIRVed ICBMs--including the rail-based MX"--and that the B-2 program be curtailed in favor of developing the Advanced Cruise Missile for the existing bomber force.¹³¹

In addition, a number of former high-ranking Defense Department officials--including Richard Perle, James Schlesinger, and Harold Brown--recommended against the U.S. deploying mobile ICBMs. While noting that "Soviet military power remains formidable and growing even as the Warsaw Pact disintegrates," Perle concluded that the conventional threat to Western Europe and the nuclear threat to the United States had diminished greatly and recommended deeper reductions than those already under

¹³¹Congress, Senate, Reorienting Defense in the 1990's, 101st Cong., 2d sess., Congressional Record, vol. 136, no. 41, daily ed. (5 April 1990), S4056-S4057.

consideration at the START talks, cancellation of the Peacekeeper rail garrison and SICBM weapon systems, and cuts in the B-2 program. Regarding ICBM modernization, Perle argued that "the current generation of ICBMs should prove adequate and . . . [ICBM modernization] will benefit from further research and development if it is delayed for a few years."¹³² Although he also suggested reorienting the SDI program, Perle asserted that more, rather than less, should be spent on strategic defense. "As the prospect of nuclear proliferation draws closer," he warned, "we should be reminded that the threat is neither exclusively Soviet, nor for that matter exclusively deliberate. There are third countries, and there are accidents."¹³³

While neither former Defense Secretary went as far as Perle in his recommendations regarding ICBM modernization, Brown proposed canceling Peacekeeper rail garrison while developing the SICBM for silo deployment with a mobile option "should the threat increase."¹³⁴ Schlesinger, on the other hand, recommended that both mobile missiles remain research and development efforts.

¹³²SASC, Threat Assessment, 24 January 1990, 122-124.

¹³³Ibid., 124.

¹³⁴SASC, Threat Assessment, 6 February 1990, 394.

As he put it, "although strategic modernization is required, it is required with a lesser sense of urgency than was the case 9 months ago."¹³⁵

The testimony perhaps most damaging to Peacekeeper rail garrison's fortunes, however, occurred on 2 February 1990, when the three most recent JCS chairmen--Gen. David Jones, Gen. John Vessey, and Adm. William Crowe--unanimously agreed that the deployment of mobile ICBMs should be deferred. Vessey, an Army officer who served as chairman from June 1982 through September 1985, testified that:

given the situation in the world today and assuming that we are going to continue to pursue arms control with the reasonably sensible objectives we have, I think the idea that somebody is going to attack our silo-based missile forces . . . is just not reasonable now. I do not believe we need to field those missiles at this time.¹³⁶

Jones, an Air Force officer who preceded Vessey as chairman, called ICBM modernization his lowest strategic priority. "I am not saying cancel the [rail-garrison and SICBM] programs 100 percent," he continued, "but I would move down the R&D route at a very modest level in these areas."¹³⁷ For his part, Crowe noted publicly, as he had

¹³⁵SASC, Threat Assessment, 30 January 1990, 318-319.

¹³⁶SASC, Threat Assessment, 2 February 1990, 348-349.

¹³⁷Ibid., 348.

privately in the past, that the U.S. already had a mobile missile with intercontinental range--the SLBM.¹³⁸

In addition to the above, support for Peacekeeper rail garrison was undermined by growing interest in a ban on mobile MIRVed ICBMs. In July 1989, Marshal Akhromeyev suggested the possibility of eliminating the rail-mobile SS-24 in exchange for canceling Peacekeeper rail garrison. Several months later, Senator Nunn endorsed the idea. Writing in the Washington Post, Nunn called for the eventual elimination of all MIRVed land-based missiles while noting that "the president could take an important step toward this goal by proposing that START ban all mobile multiple warhead ICBMs."¹³⁹ Doing so, he argued, also would be "enormously helpful in establishing a consensus between Congress and the administration on the merits of funding the development of both the Rail Garrison MX and the single-warhead small ICBM."¹⁴⁰ Among those supporting the idea in 1990 were Harold Brown, the three former JCS chairmen, Senator Warner, Representative

¹³⁸Ibid., 349.

¹³⁹Sam Nunn, "Ban Mobile MIRVs," Washington Post, 19 September 1989, A27. Italics in original.

¹⁴⁰Ibid.

Aspin, and General Chain.¹⁴¹ Significantly, Brent Scowcroft also was an early advocate, while Secretary Cheney, originally opposed to the idea, soon acquiesced because of growing opposition to rail garrison's deployment.¹⁴²

During his testimony before the HASC, Stephen Hadley, Assistant Secretary of Defense for International Security Policy, called the proposed ban "a serious proposal advanced by serious people. . . . [that] needs to be given serious consideration."¹⁴³ At about the same time, the U.S. secretly suggested eliminating mobile MIRVed ICBMs as part of the START agreement and banning all MIRVed ICBMs during follow-on negotiations. Contrary

¹⁴¹See Brown's testimony in SASC, Threat Assessment, 6 February 1990, 406 and Vessey, Jones, and Crowe's testimony in SASC, Threat Assessment, 2 February 1990, 357. The views of Warner, Aspin, and Chain were reported in R. Jeffrey Smith, "Bush Rules Out Push to Junk Mobile Missiles," Washington Post, 29 March 1990, A22.

¹⁴²Scowcroft's support for a ban on mobile MIRVed ICBMs was reported in Fred Kaplan, "Scowcroft-Cheney Missile Rift Involves More Than Just Money," Boston Globe, 22 January 1990, 3. Cheney's initial viewpoint appears in R. Jeffrey Smith, "2 Missiles Unnecessary, Ex-Chiefs Say," Washington Post, 3 February 1990, A5, while evidence of his later perspective can be found in Michael R. Gordon, "Soviets Rebuffed by Cheney on Plan Curbing Sea Arms," New York Times, 16 April 1990, A8.

¹⁴³Congress, House, Committee on Armed Services, Defense Policy Panel, Building a Defense That Works for the Post-Cold War World, 101st Cong., 2d sess., 22 March 1990, 293.

to Akhromeyev's comments a year earlier, however, Moscow exhibited little interest in the first part of the U.S. proposal.¹⁴⁴ Regarding the broader recommendation, the Soviets stipulated that the ban should apply to SLBMs as well, a condition the U.S. deemed unacceptable.¹⁴⁵

Although the United States' proposal was tabled for the time being, it was by no means dead. On 1 June 1990, Presidents Bush and Gorbachev agreed to begin post-START negotiations "at the soonest possible date" and to seek measures that would "reduce the concentration of warheads on strategic delivery vehicles as a whole, including measures related to the question of heavy missiles and MIRVed ICBMs."¹⁴⁶

Rapidly declining support for the deployment of land-based mobile missiles, the likelihood of an eventual ban on mobile MIRVed ICBMs, and concerns about the B-2's future eliminated much of the Air Force's remaining

¹⁴⁴Michael R. Gordon, "U.S. and Soviets Differ Over Ban on Multiple-Warhead Missiles," New York Times, 8 April 1990, 1 and 14.

¹⁴⁵Gordon, "Soviets Rebuffed," A1. This proposal and its outcome also are discussed in HASC, Defense Authorization Act, FY91, 170 and Congress, Senate, Committee on Armed Services, National Defense Authorization Act for Fiscal Year 1991, 101st Cong., 2d sess., S. Rept. 101-384, 20 July 1990, 75.

¹⁴⁶Quoted in HASC, Defense Authorization Act, FY91, 170.

interest in Peacekeeper rail garrison. With Aspin warning that "the ultimate number [of B-2s produced] may be closer to the 15 . . . authorized to date than the 132 originally envisioned" and an increasing number of congressional Republicans turning against the bomber because of its cost,¹⁴⁷ the Air Force focused its efforts on saving the B-2 at the expense of ICBM modernization.¹⁴⁸ Whereas ten paragraphs of General Chain's prepared testimony addressed the need for a

¹⁴⁷Aspin's warning can be found in HASC, Defense Authorization Act, FY91, Authorization and Oversight, 6 March 1990, 567. On the latter point, see Melissa Healy and Paul Houston, "B-2: Visible Target for Budget Ax," Los Angeles Times, 18 March 1990, A18.

¹⁴⁸In addition to fitting the service's self-image--flying and fighting rather than tending land-based missiles--the B-2 possessed a number of attributes that made it more attractive to the Air Force than mobile ICBMs, including its flexibility--bombers can fly conventional as well as nuclear missions--its potential for holding mobile targets at risk, and the heavy discount afforded penetrating bombers by the START Treaty. For a complete account of the Air Force's rationale for the B-2, see Donald Rice, "The Manned Bomber and Strategic Deterrence: The U.S. Air Force Perception," International Security 15, no. 1 (Summer 1990): 100-128. For an alternative view see Michael E. Brown, "The Case Against the B-2," International Security 15, no. 1 (Summer 1990): 129-153. Chain also noted that the Air Force could deploy 75 B-2 bombers capable of carrying 1,100 weapons for an additional investment of \$28 billion, while \$25 billion would have bought just 500 SICBMS and \$4.9 billion would have completed the rail-garrison system but would not have fielded any additional warheads (Congress, Senate, Committee on Appropriations, Subcommittee on Defense, Department of Defense Appropriations, Fiscal Year 1991, pt. 2, 101st Cong., 2d sess., 3 May 1990, 336).

penetrating bomber, for example, Peacekeeper rail garrison and the SICBM received just one paragraph each.¹⁴⁹ Moreover, Chain testified that neither mobile ICBM was necessary for day-to-day deterrence, although both would provide greater stability during a crisis.¹⁵⁰ With the likelihood of superpower conflict significantly reduced, however, improving crisis stability no longer seemed as critical as it did a year earlier. As the Air Force's Report to the 102nd Congress put it, "changes in the international environment make a deep crisis involving the Soviet Union much less likely."¹⁵¹

Unlike the spring of 1989, Chain was not reprimanded for his remarks regarding ICBM modernization. In fact, shortly thereafter, the Los Angeles Times reported that the Air Force had eliminated funding for rail garrison's deployment from its FY 1992 POM and slowed development of the SICBM while reorienting the program toward silo

¹⁴⁹HASC, Defense Authorization Act, FY91, Authorization and Oversight, 6 March 1990, 580-584.

¹⁵⁰Ibid., 628.

¹⁵¹U.S. Air Force, The United States Air Force Report to the 102nd Congress of the United States of America (Washington, D.C.: U.S. Air Force, Fiscal Year 1992/1993), 9.

basing.¹⁵² Although Secretary Cheney testified that he was unaware of the Air Force's recommendations,¹⁵³ reports in the press suggested otherwise.¹⁵⁴ Moreover, the Air Force was less than convincing in its denial of the accusation. Appearing before the SASC's Subcommittee on Strategic Nuclear Forces and Nuclear Deterrence, the best that the Air Force's Director of Strategic, SOF, and Airlift Programs could do was call the report "technically inaccurate" while stating that it would be "personally awkward . . . and inappropriate to comment on the Air Force POM at this time in any more detail."¹⁵⁵

Senator Exon, previously one of the program's most ardent supporters, responded by saying that Peacekeeper rail garrison was in "big trouble." As he put it, "we,

¹⁵²Melissa Healy, "Air Force Offers to Cancel MX Missiles on Rail Cars," Los Angeles Times, 24 April 1990, A22.

¹⁵³HASC, Defense Authorization Act, FY91, Authorization and Oversight, 26 April 1990, 728.

¹⁵⁴The day before the Los Angeles Times article was published, Cheney and others in the Pentagon reportedly called members of the Congress and their staff members to assure them that the Secretary of Defense opposed the Air Force's proposal (Rowan Scarborough, "Cheney Answers Belie Phone Calls on MX Missiles," Washington Times, 2 May 1990, 3).

¹⁵⁵See General Croker's testimony in Congress, Senate, Committee on Armed Services, Department of Defense Authorization for Appropriations for Fiscal Year 1991, pt. 7, 101st Cong., 2d sess., 3 May 1990, 76.

on the Committee, think we have a pretty good understanding of what the Air Force intended to recommend. . . . [and] this knowledge is going to have a bearing on what we do here."¹⁵⁶ Representative Dicks seconded Exon's assessment and summarized the situation as follows:

When it is reported that the Air Force was willing to give Rail Garrison up . . . , when three former chairman of the Joint Chiefs of Staff and former Secretary Brown have suggested we could trade it away, and when even . . . General Chain has said he could support START without Rail Garrison, but not without the B-2, then key defense committees on the Hill understandably get the impression that this is not a system that should be immune from budget scrutiny."¹⁵⁷

Despite Cheney and the Air Force's denials, Peacekeeper rail garrison's sinking fortunes were becoming increasingly obvious. In April, Cheney listed the Trident submarine and missile as his top priority, followed by the B-2.¹⁵⁸ In early June, General Welch, about to retire as Air Force Chief of Staff, indicated his preference for a pause in both the Peacekeeper rail garrison and SICBM programs due to arms control

¹⁵⁶Ibid., 77.

¹⁵⁷Quoted in "Rep. Dicks Sees MX Rail Garrison Vulnerable to Cuts by Congress," Aerospace Daily, 8 May 1990, 217.

¹⁵⁸HASC, Defense Authorization Act, FY91, Authorization and Oversight, 26 April 1990, 800.

uncertainties regarding the former and the latter's cost.¹⁵⁹ Later that month, Gen. Michael Dugan, nominated to replace Welch, declared that his second priority for strategic modernization was a single-warhead missile that can be deployed either in silos or in a mobile mode. Continued development of Peacekeeper rail garrison was relegated to third place.¹⁶⁰ "I am not 100 percent convinced that each element of the triad needs to have all the characteristics of each other element of the triad," Dugan told the Senate Armed Services Committee during his confirmation hearing. "I think there is great deterrent value in the Peacekeeper the way it currently is postured."¹⁶¹ Nunn responded by saying that he found "a lot of logic in that set of priorities."¹⁶²

When the SASC published its amendments to the FY 1991 defense budget on 20 July 1990, it eliminated all procurement funding for Peacekeeper rail garrison while approving the full amount requested--\$548.2 million--for

¹⁵⁹Barbara Amouyal, "ICBM Freeze Would Save \$30 Billion," Defense News, 11 June 1990, 1.

¹⁶⁰Congress, Senate, Armed Services Committee, Nominations Before the Senate Armed Services Committee, Second Session, 101st Congress, 101st Cong., 2d sess., 14 June 1990, 403.

¹⁶¹Ibid., 402-403.

¹⁶²Ibid., 404.

the weapon system's development.¹⁶³ Stating that the Soviet threat to Western Europe was "very remote" and held "important implications for the Soviet strategic threat,"¹⁶⁴ the committee asserted that slowing the rail-garrison program would reduce its concurrency "while awaiting further decisions by the Administration on the scope and pace of ICBM modernization" and avoid deploying a weapon system that very well could be banned by a post-START arms control agreement.¹⁶⁵ At the same time, the

¹⁶³SASC, Defense Authorization Act, FY91, 76. This course of action was consistent with a bill introduced three months earlier by Levin and Jeffords (Congress, Senate, Reduced Funding for the MX Rail Garrison Missile System, 101st Cong., 2d sess., Congressional Record, vol. 136, no. 44, daily ed. [20 April 1990], S4660).

¹⁶⁴SASC, Defense Authorization Act, FY91, 9-10.

¹⁶⁵*Ibid.*, 75. Peacekeeper rail garrison's concurrency became an increasingly contentious issue after the General Accounting Office published ICBM Modernization: Rail Garrison Production Decision and Launch Car Acquisition Should Be Delayed (Washington, D.C.: General Accounting Office, December 1989), a report that criticized the Air Force's plans to purchase 73 percent of the program's missile launch cars prior to operational testing and evaluation of the completed weapon system. Subsequently, both the HASC and the SASC held hearings addressing the issue (HASC, Defense Authorization Act, FY91, Authorization and Oversight, 25 July 1990, 749-825 and Congress, Senate, Committee on Armed Services, Department of Defense Authorization for Appropriations for Fiscal Year 1991, pt. 1, 101st Cong., 2d sess., 17 May 1990, 1131-1246). The Air Force argued that Peacekeeper rail garrison was a low risk program that integrated a proven missile with existing railroad technology. It also estimated that eliminating the program's concurrency would delay deployment by about two years and add around \$700 million to the weapon system's

committee argued that the weapon system's full development was required to "maintain U.S. leverage" in future arms control negotiations and as a "hedge against possible reversals in the course of Soviet policy or unforeseen technological breakthroughs in the areas of air defense and anti-submarine warfare."¹⁶⁶ The SASC also approved full funding for the SICBM, recommending that it be developed for silo deployment while maintaining a mobile option for future contingencies.¹⁶⁷ Both actions were consistent with Nunn's earlier recommendations.¹⁶⁸

The House Armed Services Committee followed suit early the next month. Citing the reduced risk of nuclear war, concerns about the program's concurrency, the possibility of an eventual ban on mobile MIRVed ICBMs, and the Air Force's POM recommendation, the HASC, like its Senate counterpart, also proposed terminating

cost (SASC, Defense Authorization for Appropriation, FY91, pt. 7, 3 May 1990, 82-83.

¹⁶⁶SASC, Defense Authorization Act, FY91, 76.

¹⁶⁷Ibid.

¹⁶⁸Congress, Senate, Implementing a New Military Strategy: The Budget Decisions, 101st Cong., 2d sess., Congressional Record, vol. 136, no. 44, daily ed. (20 April 1990), S4653.

procurement of Peacekeeper rail garrison.¹⁶⁹ In addition, it reduced research and development funding for rail garrison and the small missile by \$140 million and placed the money into a single account.¹⁷⁰ Finally, the committee recommended a sense of Congress resolution stating that:

(1) continued investment in research and development of mobile ICBMs is prudent; (2) the two-missile ICBM modernization program has failed to achieve the political consensus necessary for deployment of both systems; and (3) the United States defense budget is likely to continue its decline in the future, making the deployment of both the RG/MX and the SICBM unaffordable.¹⁷¹

Hertel's annual attempt to terminate the rail-garrison program was not reported out of committee in 1990, although it eventually gained 47 cosponsors.¹⁷²

On 2 August, the same day as Iraq's invasion of Kuwait, President Bush outlined a new defense strategy for the United States during a speech in Aspen, Colorado. Citing the revolutionary changes that had taken place during the previous year, the President noted that the

¹⁶⁹HASC, Defense Authorization Act, FY91, 14-15.

¹⁷⁰Ibid., 18.

¹⁷¹Ibid., 170.

¹⁷²Congress, House, Public Bills and Resolutions, 101st Cong., 2d sess., Congressional Record, vol. 136, no. 13, daily ed. (21 February 1990), H408.

world was "less driven by an immediate threat to Europe and the danger of global war" than "the needs of regional contingencies and peacetime presence." In light of these developments, Bush deferred deployment of Peacekeeper rail garrison and the SICBM pending the outcome of arms control negotiations with the Soviet Union, although development of both missiles would be continued as a hedge against a resurgent threat. In contrast, he endorsed the deployment of 75 B-2 bombers, 18 Trident submarines, and SDI, "when ready," to provide "clear and confident deterrence into the next century."¹⁷³ The President's remarks informally replaced NSM-14 as guidance concerning modernization of the nation's ICBM force.

Whereas the defense authorization conferees managed to "strongly reiterate" their support for a two-missile compromise in 1989 by reversing the Spratt and Dickinson amendments and authorizing more than \$1 billion for ICBM modernization, a new consensus had emerged less than a

¹⁷³George Bush, "Remarks at the Aspen Institute Symposium in Aspen, Colorado," Weekly Compilation of Presidential Documents 26, no. 31 (6 August 1990): 1191-1192. This strategy was elaborated during congressional testimony the following year. See, for example, Cheney's comments in Congress, Senate, Committee on Armed Services, Department of Defense Authorization for Appropriations for Fiscal Years 1992 and 1993, 102d Cong., 1st sess., 21 February 1991, 24-27.

year later. Splitting the difference between the houses' recommendations, the conferees established a \$680 million account to continue development of both Peacekeeper rail garrison and the SICBM. They also adopted a sense of Congress resolution that went beyond the House's language by directing that the small missile be developed "for deployment in silos . . . while preserving a realistic option for subsequent mobile basing" and that any funds obligated or expended for Peacekeeper rail garrison be used "only to conduct critical activities needed to complete research, development, test and evaluation" so that the weapon system could be placed in a "stand-by or 'mothball' status."¹⁷⁴

In contrast, the conferees authorized \$4.1 billion for the B-2--although it was unclear from the report's language whether additional aircraft could be purchased--\$1.15 billion for an 18th and final Trident submarine, and \$2.89 billion for SDI--a five-year low for the program.¹⁷⁵ The defense appropriations bill largely mirrored the authorization act regarding strategic

¹⁷⁴Congress, House, Conference Report, National Defense Authorization Act for Fiscal Year 1991, 101st Cong., 2d sess., H. Rept. 101-923, 23 October 1990, 33-34.

¹⁷⁵*Ibid.*, 482-483 and 523, 434, and 536, respectively.

modernization.¹⁷⁶

Peacekeeper Rail Garrison's Demise

On 30 September 1990, after months of arduous negotiation, President Bush and the Congress' leadership announced yet another agreement aimed at reducing the nation's persistent budget deficit. Included was an additional \$67 billion reduction in defense outlays over the next three years.¹⁷⁷ Given this latest cut in defense spending, the Pentagon naturally looked to the rail-garrison program as a way to save money. After all, the Air Force eliminated funding for the weapon system's deployment from its FY 1992 POM, the President deferred the deployment of mobile ICBMs during his Aspen speech, and the Congress directed that Peacekeeper rail garrison be mothballed once its development was complete.

By early December, the press was reporting Air Force efforts to terminate Peacekeeper rail garrison, perhaps

¹⁷⁶Congress, House, Conference Report, Making Appropriations for the Department of Defense, 101st Cong., 2d sess., H. Rept. 101-938, 24 October 1990.

¹⁷⁷A transcript of the announcement can be found in "Bush, Congressional Leaders Announce Agreement," Congressional Quarterly Weekly Report, 6 October 1990, 3247-3248.

as early as February 1991.¹⁷⁸ Doing so would have saved almost \$800 million dollars after termination costs were paid to the program's contractors.¹⁷⁹ The Air Force also sought to save money--\$700 million in FY 1992 and another \$2.2 billion in fiscal years 1993-1997--by reducing the number of Peacekeeper test flights from seven to three per year and ending production of the ICBM at 114 missiles rather than the 173 originally planned.¹⁸⁰ The Defense Department approved the latter recommendation and all but terminated Peacekeeper rail garrison by requesting just \$25 million for that program.

The closing days of 1990, however, proved to be an inopportune time to end rail garrison's development and halt the production of Peacekeeper test missiles. During December, Soviet arms control negotiators repudiated a

¹⁷⁸See "Top Pentagon Budget Board Seriously Mulls Killing Rail MX This Year," Inside the Air Force, 7 December 1990, 3; "Rice to Recommend Termination of Rail MX," Defense Daily, 10 December 1990, 389; and Tony Capaccio, "Air Force Ponders Terminating the MX Rail Garrison Missile," Defense Week, 10 December 1990, 1.

¹⁷⁹Four hundred and sixty-eight million dollars was appropriated for Peacekeeper rail garrison for FY 1991, and the program's projected budget for the next three years was \$290 million, \$210 million, and \$65 million, respectively. At the time, the program's termination costs were estimated to be about \$250 million (Capaccio, "Air Force Ponders," 1).

¹⁸⁰SASC, Defense Authorization for Appropriation, FY92/93, pt. 1, 21 February 1991, 34.

number of agreements relating to the START negotiations and tried to strengthen the U.S.S.R.'s position following the recently-signed Conventional Forces in Europe (CFE) Treaty by underestimating the number of weapons it was required to destroy under the treaty's terms and redesignating three motorized-rifle divisions as naval infantry so they wouldn't be covered by the agreement.¹⁸¹ Moreover, on 20 December Eduard Shevardnadze abruptly resigned his post as Soviet foreign minister to protest what he perceived to be a coming dictatorship in the Soviet Union.¹⁸² Several weeks later, the Soviet military intervened in Lithuania, killing at least 13 people and wounding about 100 others.¹⁸³ These and similar events led the U.S. to postpone ratification of the CFE Treaty and cancel the February summit between

¹⁸¹On the first point, see Tom Masland with Fred Coleman, Carla Groudin, and John Barry, "Bloodshed in Lithuania," Newsweek, 21 January 1991, 39. On the second, see Lee Feinstein, "Wrangling Over CFE Data Could Complicate Ratification," Arms Control Today 21, no. 1 (January/February 1991): 22.

¹⁸²Excerpts from Shevardnadze's resignation speech can be found in "'I Have the Briefest and Most Difficult Speech in My Life,'" Washington Post, 21 December 1991, A39. Shevardnadze also predicted that the coming dictatorship would not succeed (Ibid.).

¹⁸³Masland, et al., "Bloodshed in Lithuania," 38-40.

Presidents Bush and Gorbachev.¹⁸⁴ They also caused some to question the Pentagon's decision to cancel the only U.S. mobile ICBM capable of near-term deployment and close down the nation's only ICBM production line.

Among those questioning these decisions were members of the Congress and a number of defense contractors. In a letter to the President, for example, Senate minority leader Robert Dole (R-KS) and six members of the SASC argued that the amount authorized for ICBM modernization in FY 1991 was "the 'minimum' acceptable" and terminating or reducing programs like Peacekeeper rail garrison:

would send the wrong signal to the Soviet Union and the world. . . . given the relentless and comprehensive nature of Soviet strategic modernization programs, coupled with disturbing signs of possible civil war and the reemergence of hardline traditionalists in Soviet leadership positions.¹⁸⁵

Therefore, they urged that "any changes planned in such programs for fiscal year 1992 be based primarily on actual changes to the threat, not on budgetary

¹⁸⁴See Lee Feinstein, "CFE Treaty Hits Potholes In Road to Ratification," Arms Control Today 21, no. 2 (March 1991): 24 and Dan Oberdorfer and Ann Devroy, "Bush and Gorbachev Postpone Summit," Washington Post, 29 January 1991, A1.

¹⁸⁵Bob Dole, John Warner, Dan Coats, Strom Thurmond, John McCain, Malcolm Wallop, and Trent Lott to George Bush, 3 January 1991.

constraints."¹⁸⁶ For his part, Donald Beall, Rockwell International's chairman of the board and chief executive officer, wrote Secretary Cheney that completing rail garrison's development would enhance the United States' bargaining position during arms control negotiations and hedge against changes in the Soviet threat by ensuring that a mobile ICBM was ready for deployment.¹⁸⁷

Regarding the production of additional Peacekeepers, Senator Warner and eight of his colleagues cautioned President Bush that reducing the number of Peacekeeper test launches from seven to three per year would:

result this year in shutting down the only U.S. ICBM production line. This, in turn, will reduce confidence in the reliability and accuracy of the deployed weapons. It will hasten MX obsolescence, and may leave the U.S. without a deployed, operational ICBM beyond the year 2003.¹⁸⁸

It also was argued that ending production of the Peacekeeper would increase the SICBM's cost (the two programs shared many of the same contractors), limit the

¹⁸⁶Ibid.

¹⁸⁷Donald R. Beall to Dick Cheney, 3 January 1991.

¹⁸⁸John Warner, Strom Thurmond, Malcolm Wallop, Connie Mack, Bob Smith, Bob Dole, Steve Symms, John Seymour, and Jesse Helms to George Bush, 1 February 1991. Similar arguments were made by Donald Beall (Beall to Cheney, 3 January 1991) and the president of Textron Defense Systems (Harold K. McCard to Dick Cheney, undated).

United States' ability to respond to a Soviet breakout from the START Treaty, increase the difficulty of future negotiations on deMIRVing, and make rail garrison's eventual deployment even less likely than it already was.¹⁸⁹

Arguments like these made a strong impression on key members of the White House staff, especially Brent Scowcroft, who felt that both actions would harm the United States' bargaining position in arms control negotiations and eliminate an important hedge against reactionary change in the Soviet Union. Besides, terminating rail garrison's development contradicted the President's remarks at Aspen, Colorado. Thus, on 6 January 1991 the NSC directed the Defense Department to fund "an active and viable [rail-garrison] program leading to a launch," and by 10 January the program's budget had been increased to reflect those instructions. The purchase of additional Peacekeeper test missiles,

¹⁸⁹Ron Lehman, address before the Institute for Foreign Policy Analysis, 17 May 1991. The Air Force, which previously argued that seven test flights per year was the minimum acceptable, explained that Peacekeeper's success rate, engineering estimates, and the budget crunch "led the CINCSAC to lower the test rate from the classical statistical level of seven per year to three per year" (See, for example, Congress, House, Committee on Appropriations, Subcommittee on the Department of Defense, Department of Defense Appropriations for 1992, pt. 1, 102d Cong., 1st sess., 27 February 1991, 688).

however, was not restored, a decision about which Scowcroft had serious misgivings.

When the FY 1992 defense budget was unveiled on 4 February 1991, it called for \$273.3 billion in new budget authority, the amount agreed to at the fall budget summit and a one percent real decline from the previous year's appropriation.¹⁹⁰ Included was \$4.8 billion for the B-2 bomber, including procurement funds for four more aircraft, and \$5.2 billion for SDI.¹⁹¹

While the administration's B-2 and SDI requests clearly sought to capitalize on the success of the F-117A stealth fighter and the Patriot anti-tactical ballistic missile during the Persian Gulf War, another of the war's "lessons" was ignored--the extreme difficulty the U.S. and its allies had finding Iraq's mobile Scud missiles, even when virtually unlimited access to the enemy's

¹⁹⁰Department of Defense, Report of the Secretary of Defense to the President and the Congress (Washington, D.C.: GPO, January 1991), 23-24.

¹⁹¹See Secretary Cheney's testimony in SASC, Defense Authorization for Appropriation, FY92/93, pt. 1, 21 February 1991, 36. The SDI request included \$603 million for tactical missile defenses (Ibid.). In light of the Persian Gulf War and changes in the Soviet threat, the SDI program was refocused to provide "protection for limited ballistic missile strikes, whatever their source" (George Bush, "Address Before a Joint Session of the Congress on the State of the Union," Weekly Compilation of Presidential Documents 27, no. 5 [4 February 1991]: 94). This new program became known as Global Protection Against Limited Strikes or GPALS.

airspace was available.¹⁹² The administration requested just \$260 million for Peacekeeper rail garrison and \$549 million for continued development of the SICBM.¹⁹³ In addition, the Air Force budgeted just \$155 million for rail-garrison basing during the next three years. That program, demoted from full-scale development to a demonstration and validation effort, now largely consisted of completing the train's critical design review, constructing one operational test train, and flight testing one missile from that train. The program's modest objective was to demonstrate the weapon system's mobility and launch capability and provide sufficient documentation so that development could be resumed if the Air Force ever was directed to do so.

Although some questioned the B-2's priority over ICBM modernization--Aspin, for one, wondered why "we're spending money on . . . a leg of the triad which may become vulnerable in ten years, but we are not spending

¹⁹²As Cheney put it, "one of the lessons learned in the Gulf has been the enormous value of stealth. . . . I think it's vital we continue the B-2 program." Likewise, Cheney said that he couldn't think of a better argument for SDI than "watching the nightly Scud attacks against Tel Aviv and Riyadh" (Department of Defense, Office of the Assistant Secretary of Defense for Public Affairs, "Defense Department Briefing on Fiscal Year 1992 Budget," news release, 4 February 1991, 3).

¹⁹³SASC, Defense Authorization for Appropriation, FY92/93, pt. 1, 21 February 1991, 36.

money on a leg of the triad which was vulnerable ten years ago"¹⁹⁴--Peacekeeper rail garrison was a relative "non-issue" with the House Armed Services Committee in 1991. With their attention focused on the B-2 and SDI, the HASC, in accordance with the previous year's authorization act, approved the entire amount requested to develop and mothball the weapon system. They also authorized full funding for the SICBM.¹⁹⁵ The B-2 and SDI didn't fare as well, however. The committee eliminated \$3.2 billion in procurement funding for the stealthy bomber and refused to approve more than the 15 aircraft already authorized.¹⁹⁶ SDI's budget likewise was reduced to \$2.66 billion, eliminating all funding for the space-based brilliant-pebbles program and transferring responsibility for theater and tactical missile defense to a new office to be headed by the Army.¹⁹⁷

For its part, the Senate Armed Services Committee,

¹⁹⁴Quoted in Bruce Schoenfeld, "Mobile Missiles Give Soviets Edge Over U.S.," Defense Week, 10 June 1991, 9.

¹⁹⁵Congress, House, Committee on Armed Services, National Defense Authorization Act for Fiscal Years 1992 and 1993, 102d Cong., 1st sess., H. Rept. 102-60, 13 May 1991, 9.

¹⁹⁶Ibid., 9 and 78.

¹⁹⁷Ibid., 10 and 170-171.

historically more supportive of rail-garrison basing than its House counterpart, cut Peacekeeper rail garrison's budget by \$15 million. Noting that it was unlikely the Peacekeeper ever would be based in a mobile mode and hoping to keep the missile from qualifying as a mobile ICBM, the SASC eliminated funding for the program's only test launch and prohibited "the obligation or expenditure of funds for this purpose."¹⁹⁸ In addition, concerned that the administration's decision to declare the Peacekeeper a mobile missile for the purposes of START would result in its elimination if mobile MIRVed ICBMs were banned, the committee recommended rescinding that designation.¹⁹⁹

¹⁹⁸Congress, Senate, Committee on Armed Services, National Defense Authorization Act for Fiscal Years 1992 and 1993, 102d Cong., 1st sess., S. Rept. 102-113, 19 July 1991, 129-130. Earlier, Gen. Merrill McPeak, the new Air Force Chief of Staff, testified that a single test launch would not be significant (SASC, Defense Authorization for Appropriation, FY92/93, pt. 1, 19 March 1991, 394).

¹⁹⁹SASC, Defense Authorization Act, FY92/93, 130 and 132. As McPeak explained it, "the United States agreed in the START talks that the Peacekeeper Rail Garrison system would be considered a mobile ICBM for reciprocity with the Soviet Union. Since the United States does not have a true mobile ICBM and the Soviets do, there had to be some accommodation in the negotiations to win some of the verification provisions the United States required for Soviet mobile ICBMs." He also testified that a test launch would "truly characterize Peacekeeper as a mobile system" (SASC, Defense Authorization for Appropriation, FY92/93, pt. 1, 19 March 1991, 393-394). When Presidents Bush and Gorbachev signed the START Treaty on 31 July

The SASC also reversed the administration's proposed termination of Peacekeeper production by authorizing \$651.6 million for 12 additional ICBMs in FY 1992.²⁰⁰ Citing many of the arguments mentioned above, the committee noted that while it would:

permit the Air Force to determine how many MX FOT&E [follow-on test and evaluation] flight tests should be conducted to maintain a high level of confidence in the reliability and accuracy of the missile and is therefore willing to consider some reduction from the original plan to produce 173 missiles . . . , it does not believe that a total inventory of 114 missiles adequately meets the FOT&E requirements for this weapons system, nor does it provide sufficient flexibility for extending Peacekeeper's service life past 2003 should strategic requirements so require.²⁰¹

Unlike the HASC, the SASC also authorized full funding for the SICBM, the B-2 bomber, and SDI.²⁰²

While the House followed the HASC's lead and approved the administration's ICBM modernization request by soundly defeating separate amendments by Barney Frank

1991, Peacekeeper still was designated a mobile ICBM (U.S. Arms Control and Disarmament Agency, Office of Public Affairs, "The Strategic Arms Reduction Treaty: Basic Provisions of the Treaty," fact sheet, 29 July 1991, 4).

²⁰⁰SASC, Defense Authorization Act, FY92/93, 79.

²⁰¹Ibid., 78-79.

²⁰²Ibid., 132, 70, and 142-144, respectively.

to terminate the SICBM and Peacekeeper rail garrison,²⁰³ the Senate refused to approve the SASC's recommendations without further amendment. On 26 September 1991--after an earlier attempt by James Exon, a one-time supporter of Peacekeeper rail garrison, and Carl Levin, a long-time opponent, failed by just one vote²⁰⁴--the Senate eliminated \$225 million from the defense appropriations bill that had been earmarked to build an operational test train. As Exon and Levin explained it in a "Dear Colleague" letter prior to the second vote, the test train was no longer necessary since the SASC had prohibited a flight test from it. "Why build a \$225 million train only to place it in storage?" they asked.²⁰⁵ The amendment, approved by a vote of 67-33 the

²⁰³The former was defeated by a vote of 161-265 and the latter 155-229. See, respectively, Congress, House, National Defense Authorization Act for Fiscal Years 1992 and 1993, 102d Cong., 1st sess., H.R. 2100, Congressional Record, vol. 137, no. 78, daily ed. (22 May 1991), H3400-H3401 and Congress, House, Department of Defense Appropriations Act, 1992, 102d Cong., 1st sess., H.R. 2100, Congressional Record, vol. 137, no. 87, daily ed. (7 June 1991), H4161.

²⁰⁴Congress, Senate, National Defense Authorization Act for Fiscal Years 1992 and 1993, 102d Cong., 1st sess., S. 1507, Congressional Record, vol. 137, no. 121, daily ed. (2 August 1991), S12058.

²⁰⁵Carl Levin and Jim Exon to their colleagues in the Senate, 24 July 1991.

second time around,²⁰⁶ clearly benefitted from the failed August coup attempt by Soviet hardliners and its effect on the U.S.S.R. as a military threat. As Sen. Jim Sasser (D-TN) put it:

despite the collapse of the Soviet Union, despite the collapse of the world's other superpower, the administration currently plans to spend for defense more in 1992 and to maintain defense spending at the 1992 levels up to 1995.

Mr. President, that just does not make sense when we are sitting here looking at a \$350 billion deficit. . . . Surely we can reduce this defense appropriations bill by the infinitesimal amount, relatively speaking, of \$225 million for this rail garrison train that is going to be built and then put into sheds to gather dust for posterity, to look at and wonder about in future generations.²⁰⁷

The Senate's efforts proved to be unnecessary, however. On 27 September, President Bush, during a nationally televised address from the Oval Office, announced sweeping reductions to the U.S. strategic and tactical nuclear arsenals while calling on the U.S.S.R. to take "equally bold" action.²⁰⁸ These initiatives, planned in secret following the August coup attempt,

²⁰⁶Congress, Senate, Department of Defense Appropriations Act, Fiscal Year 1992, 102d Cong., 1st sess., H.R. 2521, Congressional Record, vol. 137, no. 135, daily ed. (26 September 1991), S13747-S13748.

²⁰⁷Ibid., S13747.

²⁰⁸A transcript of the President's speech can be found in "The Peace Dividend," A23.

sought to provide the Soviets with an incentive to remove their tactical nuclear weapons from breakaway republics to Russia by pledging to withdraw the United States' land- and sea-based tactical nuclear forces to the U.S. for storage or destruction. They also were designed to counter criticism that the administration hadn't moved quickly enough to recognize changes in the Soviet threat and to build support for those programs the administration continued to endorse.²⁰⁹ Among the administration's strategic initiatives was a decision to terminate Peacekeeper rail garrison and mobility for the SICBM. In contrast, Bush declared that the U.S. "must fully fund the B-2 and SDI," weapon systems that "are designed to reduce the danger of miscalculation in a crisis."²¹⁰

In the aftermath of the President's announcement, the Congress agreed to terminate Peacekeeper rail garrison, deleting all funding for the weapon system from

²⁰⁹David Hoffman, "Bush Attempting to Capitalize on Major Changes in Moscow," Washington Post, 28 September 1991, A19.

²¹⁰"The Peace Dividend," A23. Bush also ordered that the Minuteman II ICBM and all strategic bombers be taken off alert and proposed banning MIRVed ICBMs while easing the ABM Treaty's restrictions on strategic defenses (Ibid.). Gorbachev responded with his own reductions and proposals a week later. See, for example, Fred Hiatt, "Gorbachev Pledges Wide-Ranging Nuclear Cuts," Washington Post, 6 October 1991, A1.

the FY 1992 defense budget.²¹¹ The defense authorization conferees refused to cancel mobile basing for the small missile, however, directing instead that the Secretary of Defense certify that "a sufficient amount of such funds will be obligated to conduct a viable program of research and development of mobile basing options for the SICBM program."²¹² As the conferees explained it:

In tandem with the President's decision to cancel all ground alerts for U.S. strategic bombers, the administration's proposal to terminate all R&D on ICBM mobility means that U.S. deterrence against a no-warning strategic first-strike would rest on the 18 Trident submarines permitted the United States under START, only about 10 of which will be at sea at any one time. The conferees are concerned that this combination of bomber and ICBM vulnerability to a surprise attack would pose unacceptable risks to the United States in the event of a Soviet breakthrough in non-acoustic submarine detection technologies.²¹³

They also approved \$252 million for the purchase of six additional Peacekeepers.²¹⁴

²¹¹Congress, House, Conference Report on H.R. 2100, National Defense Authorization Act for Fiscal Years 1992 and 1993, 102d Cong., 1st sess., Congressional Record, vol. 137, no. 167, daily ed. (13 November 1991), H9879. As the conferees explained it, there already were sufficient unobligated and unexpended funds to cover the program's approximately \$78 million in termination costs (Ibid., H10085).

²¹²Ibid., H9879.

²¹³Ibid., H10085.

²¹⁴Ibid., H10016.

Although rail garrison's cancellation was upheld during the appropriations process, the Congress' other actions were reversed when the SICBM's budget was reduced to \$433.8 million and just \$195 million was approved for the Peacekeeper missile, the amount requested to close the production line. While it was left to the President to decide if mobility for the SICBM and/or additional Peacekeeper test missiles would be funded within these reduced budgets,²¹⁵ there was little chance either program would survive given the administration's desire to terminate both. More than \$2.7 billion was appropriated for rail-garrison basing between fiscal years 1987 and 1991 (see table 3). Among the other strategic programs, SDI was the big winner. It received \$4.15 billion, including \$390 million for the brilliant-pebbles program. The authorization bill also directed that the Defense Department:

develop for deployment by the earliest date allowed by the availability of appropriate technology or by fiscal year 1996 a cost-effective, operationally-effective, and ABM Treaty-compliant anti-ballistic missile system at a single site as the initial step toward deployment of an anti-ballistic missile system . . . designed to protect the United States

²¹⁵Congress, House, Conference Report, Making Appropriations for the Department of Defense for the Fiscal Year Ending September 30, 1992, and for Other Purposes, 102d Cong., 1st sess., H. Rept. 102-328, 18 November 1991, 119 and 162.

against limited ballistic missile threats, including accidental or unauthorized launches or Third World attacks.²¹⁶

Table 3

Rail-Garrison Funding--Fiscal Years 1987-1992
(In Millions of Then-Year Dollars)

	1987	1988	1989	1990	1991	1992
Amount Requested	90	593	793	1,113	2,159	260
Amount Approved	90 ^a	350	600 ^b	1,050 ^c	680 ^c	---

^a Part of the \$120 million budgeted for alternative ICBM basing modes.

^b The total amount that could be spent on Peacekeeper rail garrison. Only \$250 million could be used before 15 February 1989.

^c Funding for Peacekeeper rail garrison and the SICBM was combined into a single account.

The year's big loser was the B-2. It received just \$1.8 billion in procurement funding to complete the 15 aircraft already authorized. Although another \$1 billion was approved to buy an additional bomber, separate legislation was required to release the money,²¹⁷ an unlikely outcome given the House's long-standing opposition to the B-2, the Senate's waning support for the bomber--its latest vote on the B-2 passed by just

²¹⁶House, Congressional Record, 13 November 1991, H9879.

²¹⁷Ibid., H9874.

three votes²¹⁸--and declining enthusiasm for the program within the administration and the Air Force. For example, despite his stated support for the program and repeated threats to veto the defense budget because of its B-2 provisions, President Bush signed the bill on 7 December 1991, stating that it was "sufficient to meet foreseeable threats to the national security."²¹⁹ For its part, the Air Force was placing increasingly greater emphasis on tactical weapons like the Advanced Tactical Fighter over strategic systems like the B-2.

²¹⁸Congress, Senate, Department of Defense Appropriations Act, Fiscal Year 1992, 102d Cong., 1st sess., H.R. 2521, Congressional Record, vol. 137, no. 134, daily ed. (25 September 1991), S13678-S13679. This vote, like the Senate's second vote on Peacekeeper rail garrison, came after the failed August coup. It also occurred after reports became public that the B-2 failed tests of its "ability to operate without being detected by enemy radar" ("Test Failure of B-2 Bomber Disclosed," Washington Post, 12 September 1991, A18). Although Secretary of the Air Force Donald Rice asserted that the B-2 remained "the most survivable aircraft in the world" (Quoted in Ibid.), Cheney's spokesman, Pete Williams, was less sanguine. "If [the B-2] continues to have this problem," he noted, "then it's a major problem" (Quoted in R. Jeffrey Smith, "B-2 Bomber Fails Test of Stealthiness," Washington Post, 13 September 1991, A4).

²¹⁹Quoted in "Defense Bill Signed by Bush Sets 1996 as Target for SDI Deployment," Washington Post, 7 December 1991, A8.

CHAPTER 6
PEACEKEEPER RAIL GARRISON AND THE
BUREAUCRATIC POLITICS MODEL

Three objectives were set out at the beginning of this case study. First of all, this study sought to contribute to an important literature regarding the procurement of major weapon systems by completing the Peacekeeper story. The most recent book-length treatment of the Peacekeeper was published in 1985--prior to the Nunn-Warner Amendment and the introduction of rail-garrison basing. Moreover, nothing had been written about the events leading to rail garrison's selection as the missile's follow-on basing mode, and accounts of the politics that followed that decision were incomplete, fragmented, and lacked a coherent theoretical underpinning.

Second, this study examined Peacekeeper rail garrison from the bureaucratic politics perspective in order to test a number of propositions suggested by that model. Those propositions, enumerated by Holland and Hoover in The MX Decision, were used here as well because they are generally representative of what the model

predicts regarding weapons procurement and to facilitate comparisons of the two studies' findings. Recall that the propositions for the defense acquisition process through full-scale development--the "inner layer"--state that:

1. Ideas for new weapons or refinements of old weapons are seldom the result of deliberate strategic policy analysis. Rather, they are the product of organizational doctrines, technological opportunities, perceptions of enemy threat, and/or incomplete and often vague strategic attitudes. More accurately, these ideas involve the interaction of engineering groups [assigned to the Under Secretary of Defense for Acquisition], design labs in industry, engineering elements in think tanks, and the subunit of the military service with ultimate responsibility for the use of the new or refined weapon.
2. During the design, research, development, and testing stage, [in other words, through full-scale development,] procurement decisions about weapon ideas continue to be determined by the interaction of engineering groups [assigned to the Under Secretary of Defense for Acquisition], design labs in industry, engineering elements in think tanks, and the subunit of the military service with ultimate responsibility for the use of the new or refined weapon being the most significant actor.
3. The mission of the subunit of the military service with the ultimate responsibility in the military for the use of the new weapon along with the power of that subunit are the more important factors in the success of a weapon system (i.e., the attractiveness of the weapon to draw support within the Pentagon as compared to other alternatives) than the larger strategic and force posture considerations of U.S. national security

policy.

4. Senior political officials outside the Pentagon may disturb decisions at this layer of action on procurement but rarely control it.

5. Political officials outside the executive branch as well as extragovernmental individuals will seldom seek to influence the inner layer procurement decisions, let alone disturb or even control them.

6. The hundreds of interrelated yet individual decisions during design, research, development, and testing cause the character of procurement decisions in this layer of activities to be incremental rather than synoptic.

7. The likelihood that a weapon system will reach design, research, development, and testing depends on the effectiveness of its advocates to continually promote the economic and political well-being of their project, for the longer a weapon system survives during this inner layer of procurement activities the greater the momentum that builds for the weapon. The repeated individual choices begin to establish an irresistible bureaucratic inertia.

The propositions for the procurement and deployment of weapon systems--the "outer layer"--predict that:

8. When the decision for a weapon program reaches the point of acquisition and deployment, the number of participants with interests in a particular weapon system tends to increase significantly, especially inside the executive branch.

9. During the acquisition and deployment stage, more actors from the congressional and public arena[s] are activated. However, the congressional and public arenas remain indirect and peripheral to the decision process for weapon procurement.

10. The principal factor for producing what congressional involvement there is in procurement is porkbarrel.

11. The acquisition and deployment of a weapon program continues to depend on the capability of its advocates to promote the economic, strategic, and political well-being of their project.

12. Those weapon systems being considered for acquisition and deployment most likely to engender significant support (i.e., that will be least controversial) are those where

- a) the missions of the organization responsible for the new weapon converges with the capability of the weapon;

- b) technological opportunity converges with a consensus on national policy;

- c) the strategic requirements or foreign policy needs converge with the weapon system's capabilities;

- d) the cost of deploying the weapon system in domestic terms (i.e., money, land, environmental impacts, and jobs) are likely to be relatively less than other alternatives; and

- e) the advantages of deploying the weapon system in domestic terms (i.e., contracts and jobs) are likely to be relatively greater than other alternatives.

13. Weapon programs are seldom slowed or overturned once initial approval of acquisition is achieved in the executive branch, and only a presidential directive is likely to slow or overturn that decision. However, the decision to modify, while executive based, may be made in anticipation of public or congressional resistance deemed threatening enough to warrant change.

14. The "rules of the game" introduced by the secretary of defense and the president shape

how and by whom acquisition and deployment decisions will be made within the executive branch.

Finally, this study assessed the influence of nonbureaucratic forces and actors on the politics of Peacekeeper rail garrison, factors that are discounted by the bureaucratic politics model but considered essential to a full understanding of the defense acquisition process by Holland and Hoover. To that end, they suggested the following additional propositions:

15. Strategic policy considerations will be significant factors in procurement decisions in cases where the weapon system's strategic advantages are uncertain.

16. Foreign policy considerations will be significant factors in procurement decisions in cases where the weapon system's foreign policy advantages are uncertain.

17. Environmental considerations will be significant factors in procurement decisions in cases where the weapon system will be environmentally costly.

18. Socioeconomic considerations will be significant factors in procurement decisions where the weapon system will consume large amounts of resources (material and financial) and be socially costly.

19. The president will be a decisive participant in cases where the strategic, foreign policy, and/or domestic considerations of the weapon system are in conflict with administration policies.

20. Congress will be an important arena in cases where the strategic, foreign policy, and/or domestic considerations of the weapon system are in conflict with constituent and/or

personal policy preferences.

21. The public arena will be an important one in cases where the costs and/or benefits of deploying the weapon system pose a clear and present threat to the interests of individuals.

While Chapters 2-5 fulfilled the first objective and provide evidence regarding the second and third, this chapter, using the propositions restated above as a framework, summarizes the study's findings and makes explicit the bureaucratic politics model's applicability to the rail-garrison program.

Testing the Bureaucratic Politics Model

In 1985, the Congress capped at 50 the number of Peacekeepers that could be deployed in Minuteman silos, thereby sending the Air Force and the Reagan administration in search of another basing mode so that 100 missiles could be fielded as recommended by the Scowcroft Commission. And, in accordance with Proposition 1, that search began with the Air Force reexamining many of the 30-plus basing modes suggested over the years by engineering groups in the Defense Department, industry design labs, and think tanks. By September, the list of prospective basing options was reduced to eight: hardened Minuteman silos, closely-spaced superhard silos, closely-spaced superhard silos

with concealment, rail mobility, shallow-tunnel basing, ground mobility, deep-underground basing, and the carry-hard concept. By the year's end, the four front-runners were the two closely-spaced superhard silo options, the carry-hard concept, and shallow-tunnel basing.

The quest for a follow-on basing mode soon began to diverge from Proposition 1, however, when Colonel Douglass of the NSC staff became concerned that none of the four front-runners would be acceptable to those members of the Congress willing to consider the deployment of additional Peacekeepers if a basing mode using mobility and deception could be found. Closely-spaced basing, especially the without-concealment version, clearly did not meet this requirement. Moreover, the Congress rejected the concept in 1982. Shallow-tunnel basing came the closest but had a number of drawbacks, not the least of which was its lack of a sponsor. In addition, both shallow tunnel and carry hard's land-use requirements were viewed as prohibitive given the problems encountered with MPS basing.

Of the eight alternatives examined in 1985, only rail-mobile basing would have employed mobility and deception. Rail mobility, however, had long been dismissed as a viable basing option and calls for a new analysis aimed at addressing its negative features were

not heeded. Rather, the Air Force favored closely-spaced superhard silos because they corresponded with the service's long-standing deployment doctrine for ICBMs (silo basing), matched BMO's research focus at the time (superhard silos), and could have been fielded more quickly and with less cost and public interface than the other options then under consideration. Thus, it was left to someone outside of the engineering groups listed in Proposition 1 to take the initiative and devise a way to minimize rail mobility's public-interface, security, and cost problems while trying to maintain the basing mode's advantages. The result was the rail-garrison concept.

Likewise, decisionmaking within the executive branch more closely approximated Proposition 8 than Propositions 2 and 4. Although Peacekeeper rail garrison never formally advanced beyond full-scale development, even the earliest decisions regarding the weapon system were made at much higher levels than the bureaucratic politics model suggests for the inner layer of the defense acquisition process. The IJRG, for example, consisted of representatives from the Special Assistant for ICBM Modernization's office, various Air Staff agencies, BMO, SAC, USDRE/USDA, and USDP. Moreover, although the IJRG was created, in part, to oversee the process leading to

the JRMB recommending a follow-on basing mode for the Peacekeeper, the latter never did so. Instead, that recommendation came from the Secretary of Defense and was approved by the President following an expanded NSC meeting. This is consistent with Proposition 14 which notes that the Secretary of Defense and the President decide the "rules of the game"--"how and by whom acquisition and deployment decisions will be made within the executive branch."

Also, because this and all subsequent major decisions regarding Peacekeeper rail garrison were made at the administration's highest levels--see, for example, President Bush's decision to proceed with the phased deployment of both Peacekeeper rail garrison and the SICBM and the NSC's role in continuing the former's development in 1991--the decisionmaking process was less incremental than Proposition 6 predicts. Still, each of these decisions contained strong elements of satisficing --adopting a solution that can be agreed upon by the various actors involved rather than searching for the single best solution. As General Welch, for example, put it regarding his preference for the rail-garrison concept, "we didn't want to look at additional basing

modes, we just wanted to pick one that could sell."¹

The Congress also played a much larger role than indicated by Propositions 5 and 9. After all, the search of a follow-on basing mode began with the Nunn-Warner Amendment, and the rail-garrison concept was created to satisfy those members of the legislature calling for mobility and deception. The Congress' involvement continued throughout the Reagan and Bush administrations. Its reaction, for example, to Secretary Carlucci earmarking eight of the Peacekeeper missiles requested as part of the FY 1989 defense budget for rail-garrison basing resulted in a quick reversal of that decision. The following year, the Bush administration, in recognition of the Congress' opposition to more than 50 operational Peacekeepers, announced that it would relocate the silo-based force to garrisoned railroad cars and forgo the deployment of additional missiles. Later that year, the Congress codified that decision by extending the 50-missile cap from Minuteman silos to all possible basing modes.

Even more significantly, it was the Congress' lack of consensus regarding ICBM modernization that led to the

¹Larry D. Welch, interview by author, 24 June 1991, Written notes, the Institute for Defense Analyses, Alexandria, VA.

Scowcroft Commission compromise and linked the Peacekeeper with the SICBM and arms control for the duration of the Cold War. Thus, although the Air Force, the JCS, the Secretary of Defense, and the President all would have preferred to proceed with just Peacekeeper rail garrison, the small missile was included in the ICBM modernization package announced on 19 December 1986. This linkage also led the Reagan administration to reverse its decision to cancel the SICBM as part of its lame-duck defense budget, contributed to the Bush administration proceeding with the phased deployment of both mobile missile systems, and resulted in a number of congressional actions aimed at keeping the two programs closely coupled. In 1989, for example, the SICBM's supporters insisted that the Bush administration demonstrate its commitment to the small missile by adding money to that program. In response, the administration agreed to request almost \$1 billion in additional funding for fiscal years 1992-1994.

In contrast with the Congress' activism and their own role in the politics of MPS basing, public opposition to the deployment of additional Peacekeepers was diminished greatly by plans to garrison the missile trains, thereby eliminating any day-to-day contact between the weapon system and the public. In addition,

the use of existing military installations and railroad infrastructure minimized the basing mode's effect on the environment, local socioeconomic conditions, and natural resources. Selecting SAC bases to be the garrisons reduced the public's opposition even further by locating the weapon system in areas accustomed to the presence of nuclear weapons.

Also conspicuous by their virtual absence were those arms control groups that actively opposed the Peacekeeper during the early 1980s and played a role in capping the missile's deployment in Minuteman silos.² Although they also opposed Peacekeeper rail garrison, their lobbying efforts were limited for several reasons. First of all, the rail-garrison program remained a research and development effort, and its budgets were small compared to other strategic programs. Given their limited resources, these organizations naturally focused their attention on "big-ticket" items like the B-2 bomber and SDI.³ As Charles Monfort, a former legislative director

²For an excellent discussion of the arms control lobby's efforts to defeat the Peacekeeper from the spring of 1982 through the spring of 1984, see chapters seven and eight of Michael Pertschuk, Giant Killers (New York: W.W. Norton & Co., 1986).

³John Isaacs, interview by author, 27 November 1991, Written notes, Council for a Livable World, Washington, D.C. and Charles Monfort, interview by author, 3 December 1991, Written notes, the Rayburn House Office Building,

for the Union of Concerned Scientists put it, "rail garrison was a tertiary issue."⁴ Second, their primary concern was that rail-garrison basing might result in additional Peacekeepers being approved for deployment.⁵ The Congress, however, never was inclined to do so.

If Peacekeeper rail garrison would have advanced beyond full-scale development, the arms control community was poised to turn its attention toward that weapon system. "There was lots of awareness of the issue and the groundwork was there," Monfort noted. "If the program would have advanced to procurement and deployment, it would have been moved to the front burner."⁶ Doing so would have corresponded with Proposition 8 and at least the first half of Proposition 9. For the reasons cited above, however, it seems unlikely that a grass-roots movement like the one that opposed MPS basing would have developed.

As it turned out, this groundwork proved to be unnecessary. Although the Bush administration sought

Washington, D.C.

⁴Monfort, interview, 3 December 1991.

⁵John Isaacs, interview, 27 November 1991 and Mike Mawby, interview by author, 6 December 1991, Written notes, Common Cause, Washington, D.C.

⁶Monfort, interview, 3 December 1991. Several other arms control lobbyists agreed with Monfort's assertion.

more than \$2 billion for Peacekeeper rail garrison in its FY 1991 defense budget, including \$1.2 billion to build seven missile trains and provide advance procurement for nine more, the request coincided with the Air Force's loss of interest in the weapon system, administration efforts to ban mobile MIRVed ICBMs, and the revolutionary changes underway in Eastern Europe and the Soviet Union.

Although decisionmaking within the administration occurred at higher levels and was less incremental than predicted for the inner layer of the weapons acquisition process and the Congress' role clearly exceeded the model's expectations, Proposition 3--when amended to account for SAC's essence--and Propositions 7 and 11 go a long way toward explaining rail garrison's fortunes. As mentioned in Chapter 1, the Peacekeeper program had two central objectives: increasing the United States' capacity to destroy hardened targets like Soviet missile silos and making the U.S. ICBM force more survivable. The former, however, corresponded more closely with SAC's mission--detering the Soviet Union by holding a large number of military, political, and economic/industrial targets at risk and being prepared to destroy various combinations of those targets if deterrence fails--and, therefore, received greater emphasis within the Air Force. Witness, for example, the several attempts to

deploy the Peacekeeper as quickly as possible by housing it in vulnerable Minuteman silos and the Air Force's efforts to keep the first 50 Peacekeepers in their silos rather than rebasing them in the rail-garrison mode. As one DOD official noted early in the Peacekeeper program, "survivability of the land-based ICBM is an extremely important consideration. However, the primary factor behind MX development is the need for a more effective missile to meet an escalating Soviet threat."⁷ Or, as General Welch put it, "survivability has been overplayed. The real issue is capability."⁸ The Air Force clearly would have been satisfied with 100 Peacekeepers in Minuteman silos and only sought a survivable basing mode in order to deploy more of the ten-warhead missiles.

While SAC's mission explains the Air Force's desire for additional Peacekeepers, it doesn't account for the service's initial preference for closely-spaced superhard silos and its subsequent enthusiasm for rail-garrison basing. A full explanation also must consider SAC's essence--strategic bombardment using manned aircraft--and the competition between ICBMs and strategic bombers for

⁷Quoted in John Edwards, Superweapon: The Making of the MX (New York: W.W. Norton & Co., 1982), 116.

⁸Quoted in Edgar Ulsamer, "Missiles and Targets," Air Force Magazine 70, no. 7 (July 1987): 68.

shares of the Air Force budget. Although the Air Force favored superhard silos for a number of reasons and primarily abandoned that basing mode because it was considered unacceptable to the Congress, cost was also a major factor. Recall, for example, that closely-spaced superhard silos was the least expensive of the eight options initially considered and that General Chain sought to reduce rail garrison's price before he would commit to it. The cost of ICBM modernization became even more significant in the years that followed.

Propositions 7 and 11 contend that a weapon system's progress from concept exploration and definition to production and deployment depends on the ability of its supporters to "promote . . . the well being of their project." Just as the armed services are "the most powerful institutions in the American national security arena,"⁹ SAC is the most influential organization regarding strategic modernization. Chain, for example, was an early, enthusiastic, and influential supporter of rail-garrison basing and sold General Welch on the idea. As one high-ranking OSD official put it, Chain gave Peacekeeper rail garrison "the push it needed." Together

⁹Carl H. Builder, The Masks of War: American Military Styles in Strategy and Analysis (Baltimore: Johns Hopkins University Press, 1989), 3.

with Colonel Douglass and the basing mode's other key supporters, Welch and Chain were able to overcome OSD's divided opposition and enlist the support of the railroads, the JCS, the Secretary of Defense, and the President. Within OSD, USDP sought to ban mobile ICBMs and protect the land-based missile force with strategic defenses but found its influence limited by its preoccupation with arms control matters, Secretary Weinberger's support for the deployment of 100 Peacekeepers, and USDRE's predominance regarding missile basing. USDRE, on the other hand, favored carry-hard basing but also found its influence restricted for a number of reasons. Both organizations were affected by the decentralization of power that characterized the Weinberger Pentagon.

Rail garrison's supporters, however, were less successful building congressional support for the deployment of additional Peacekeepers. The Congress' lack of consensus regarding ICBM modernization required that both Peacekeeper rail garrison and the SICBM be developed if either was ever to be deployed. Concerns persisted, however, regarding the executive branch's commitment to the small missile. For example, although more than \$2 billion was requested for the SICBM in the FY 1988 defense budget (compared with less than \$600

million for rail-garrison basing) reports in the press and the testimony of key administration officials indicated that the small missile was nothing more than the price to be paid to deploy additional Peacekeepers and would be abandoned once that objective was attained or if the budget situation warranted. The Reagan administration attempted the latter after the stock market collapsed in October 1987 and the budget summit that followed reduced defense spending by more than \$50 billion dollars for fiscal years 1988 and 1989.

In addition, the rail-garrison concept was contentious for a number of reasons. Whereas previous ICBM basing schemes were designed to be survivable regardless of the level of attack warning available, rail garrison's survivability depended upon a timely response to strategic warning. The weapon system, therefore, would have been vulnerable to a bolt-from-the-blue attack. Although this scenario admittedly was unlikely given the number of bomber and submarine weapons that would have survived to retaliate, basing as many as 80 warheads at a single installation made Peacekeeper rail garrison a tempting target and meant that the missiles, while garrisoned, would have to be launched on warning to survive. Questions also were raised about the effect rail-garrison basing would have on the synergy that

existed between the ICBM and bomber forces, the impact that dispersing the trains would have on stability during a crisis, the trains' safety and security once dispersed, and the program's concurrency.

Because its supporters were unsuccessful in their efforts to convince the Congress of rail garrison's merits, it became clear by 1989 that the deployment of additional Peacekeepers would not be authorized, and SAC's mission and essence again came into play. When the Bush administration decided to rebase the existing Peacekeeper force and forgo the deployment of additional missiles, the Air Force's interest in rail-garrison basing began to wane. Chain, at the forefront of this movement, expressed his satisfaction with the Peacekeeper in silos and declared the B-2 bomber his top priority. The Congress' cap on the number of Peacekeepers that could be deployed in any basing mode and the administration's efforts to ban mobile MIRVed ICBMs further contributed to rail garrison's declining fortunes. In April 1990, the Air Force eliminated funding for rail garrison's deployment from its POM, and later that year DOD recommended that just \$25 million be requested for the program in FY 1992.

With the Air Force opposed to its own program, no strong advocate outside the service, and the Cold War

drawing to a close, Peacekeeper rail garrison's fate was sealed. Although more than \$2 billion was requested for the weapon system in 1990, the Congress authorized just \$680 million in research and development funds for both Peacekeeper rail garrison and the SICBM. In addition, the Congress directed that rail garrison's development be completed and the system mothballed. In the midst of these actions, President Bush deferred the weapon system's deployment. Amended to include SAC's essence as well as its mission, Proposition 12 summarizes rail garrison's plight.

On 27 September 1991, President Bush canceled the rail-garrison program, thereby complying with that portion of Proposition 13 which states that "once initial approval of acquisition is achieved in the executive branch . . . only a presidential directive is likely to slow or overturn that decision." Proposition 13 also asserts that the President's decision may be influenced by congressional or public resistance to the weapon system. This also appears to be the case. Several months earlier, the SASC eliminated rail garrison's only test launch from the defense budget. Subsequently, funding for an operational test train came under attack and was overwhelmingly eliminated from the Senate's defense appropriations bill. Although the HASC approved

the entire amount requested to develop and mothball the weapon system, it seems likely that the House of Representatives, traditionally less supportive of Peacekeeper rail garrison than the Senate, would have receded during conference negotiations if President Bush had not already canceled the program.

Assessing the Impact of Nonbureaucratic
Forces and Actors

In The Common Defense, Samuel Huntington observed that defense policy stands at the crossroads between two worlds:

One is international politics, the world of the balance of power, wars and alliances, the subtle and brutal uses of force and diplomacy to influence the behavior of other states. . . . The other world is domestic politics, the world of interest groups, political parties, social classes, with their conflicting interests and goals.¹⁰

It follows, therefore, that a complete account of the defense acquisition process must recognize that "under certain circumstances the public and congressional arenas will be active ones, and that strategic, foreign policy, and domestic political forces can be salient, even within

¹⁰Samuel P. Huntington, The Common Defense: Strategic Programs in National Politics (New York: Columbia University Press, 1961), 1.

the executive branch."¹¹

As the above indicates, this was indeed the case with Peacekeeper rail garrison where a number of nonbureaucratic forces affected the weapon system's fortunes. The most important strategic influences were the Congress' lack of consensus regarding ICBM modernization, concerns about rail garrison's survivability, and the end of the Cold War. Foreign policy influences included efforts to link Peacekeeper rail garrison with the success of arms control negotiations--see, for example, President Reagan's veto of the FY 1989 defense budget--and the suggested ban on mobile MIRVed ICBMs. Domestic political forces resulted in efforts to minimize Peacekeeper's public interface and its effect on the environment, local socioeconomic conditions, and natural resources. They also contributed to declining defense budgets. Following the October 1987 stock market crash, for instance, defense spending was reduced by budget agreements in November 1987, April 1989, and September 1990.

Unfortunately, it is impossible to determine which of these factors or combination of factors would have

¹¹Lauren H. Holland and Robert A. Hoover, The MX Decision: A New Direction in U.S. Weapons Procurement Policy? (Boulder, CO: Westview Press, 1985), 245.

been sufficient to cause the Air Force to lose interest in Peacekeeper rail garrison or the Congress to abandon the two-missile compromise that emerged in 1989. Declining defense budgets, indications that the number of operational Peacekeepers would not exceed 50 missiles, the proposed ban on mobile MIRVed ICBMs, and the revolutionary changes occurring in Eastern Europe and the Soviet Union all existed to some degree prior to the Air Force eliminating rail garrison's deployment from its POM. Likewise, these factors and the Air Force's loss of interest in the weapon system were cited by the House and Senate armed services committees as reasons for terminating Peacekeeper rail garrison's procurement as part of the FY 1991 defense budget. Still, this case study supports Propositions 15-18. Although environmental and socioeconomic considerations were insignificant because the weapon system would have been garrisoned and would have used existing infrastructure, support for Peacekeeper rail garrison diminished as its strategic, foreign policy, and domestic advantages became increasingly uncertain. These uncertainties also help to explain why the level of executive-branch decisionmaking exceeded the model's predictions for the inner layer of the defense acquisition process and the Congress' role in the politics of Peacekeeper rail garrison.

Building upon the work of Huntington and Lowi,¹² Ripley and Franklin differentiated between three types of defense policies and programs: structural, strategic, and crisis. Structural policies and programs are those primarily aimed at "procuring, deploying, and organizing personnel and material, presumably within the confines and guidelines of previously determined strategic decisions." As such, they tend to be uncontroversial and decisionmaking within the executive branch is conducted at the bureau level. Strategic policies and programs, by comparison, are "designed to assert and implement the basic military and foreign policy stance of the United States" and are more controversial with centralized decisionmaking within the executive bureaucracy and greater congressional involvement. Finally, crisis policies are "short-run responses to immediate problems that are perceived to be serious, that have burst on the policymakers with little or no warning, and that demand immediate action." They are made at the highest levels of the administration and the Congress' role is

¹²See Huntington, The Common Defense, 3-7 and Theodore J. Lowi, "Making Democracy Safe for the World: National Politics and Foreign Policy," in Domestic Sources of Foreign Policy, ed. James N. Rosenau (New York: Free Press, 1967), 324-325.

limited.¹³ These categories, of course, exist along a continuum and can exhibit more or less of the characteristics associated with each of the three types and move from one category to another over time.¹⁴

While the vast majority of defense programs fit the structural category--Ripley and Franklin list "specific defense procurement decisions for individual weapons systems" as an example of this type¹⁵--and others begin as strategic programs but become structural as they are accepted and move toward procurement and deployment,¹⁶ the Peacekeeper ICBM was controversial from the beginning because of its counterforce capability and remained so when several administrations were unable to find a survivable basing mode that would be technically feasible, affordable, and politically acceptable. Since Peacekeeper rail garrison was heir to this legacy and was itself contentious for a number of reasons, this observation applies here as well.

Although Ripley and Franklin's typology focuses on

¹³Randall B. Ripley and Grace A. Franklin, Congress, the Bureaucracy, and Public Policy, 3d ed. (Homewood, IL: Dorsey Press, 1984), 29-30 and Table 1-3 on pages 24-25.

¹⁴Ibid., 204.

¹⁵Ibid., 29.

¹⁶Ibid., 214.

a program's strategic implications, it easily could be expanded to include foreign policy and domestic political considerations as well.¹⁷ While the public arena was relatively inactive for the reasons mentioned above, the weapon system's otherwise controversial nature heightened the Congress' involvement and the level of executive-branch decisionmaking, thereby supporting Propositions 19-21.

Amendments and Implications

This study suggests that several amendments to the aforementioned propositions are in order. First of all, Propositions 17 and 18 can be replaced with a single proposition stating that "support for a weapon system will decrease as the weapon system's cost to the region and populace where it will be deployed increases." Doing so would broaden the statement to include objections on other than environmental and socioeconomic grounds--public safety concerns, for example--that pose the kind of "clear and present threat" to which Proposition 21 refers. In addition, Proposition 19 should be reworded to predict that "the level at which decisions are made in

¹⁷Huntington, for example, noted that a defense program or policy is likely to be controversial (in a state of "disequilibrium") when it conflicts with key domestic political and foreign policy goals (Huntington, The Common Defense, 7).

the executive branch will increase as does the degree of conflict between a weapon system and strategic, foreign policy, and/or domestic considerations," thereby accounting for decisionmaking between the bureau and presidential levels.

More significantly, Propositions 3 and 12 should be amended to account for the role an organization's essence can play in weapons acquisition decisions. In Bureaucratic Politics and Foreign Policy, Morton Halperin noted that "organizations are formally charged with specific *missions*" and that "participants in a policy decision examine any proposal to gauge whether or not it would help their particular organization carry out its mission."¹⁸ He also observed, however, that:

Organizations have considerable freedom in defining their missions and the capabilities they need to pursue these missions. The organization's *essence* is the view held by the dominant group in the organization of what the missions and capabilities should be.¹⁹

Thus, organizations favor those policies and strategies that enhance their essence and eschew those that diminish

¹⁸Morton H. Halperin with the assistance of Priscilla Clapp and Arnold Kanter, Bureaucratic Politics and Foreign Policy (Washington, D.C.: Brookings Institution, 1974), 26. *Italics in original.*

¹⁹*Ibid.*, 28. *Italics in original.*

it.²⁰

Examples of this kind of behavior abound in the literature. Katzenbach, for example, described how the essence of European horse cavalries affected their adaptability to new weapons technologies.²¹ Stubbing discussed, among other issues, the Air Force's lack of enthusiasm for providing the Army with close air support -- "the use of air power in direct support of ground forces engaged in combat."²² Beard examined the Air Force's reluctance to develop the ICBM.²³ And Sapolsky noted the opposition of submariners to the Polaris

²⁰Ibid., 39-40.

²¹Edward J. Katzenbach, "The Horse Cavalry in the Twentieth Century: A Study in Policy Response," in Readings in American Foreign Policy: A Bureaucratic Perspective, ed. Morton H. Halperin and Arnold Kanter (Boston: Little, Brown & Co., 1973), 172-190.

²²Richard A. Stubbing with Richard A. Mendel, The Defense Game: An Insider Explores the Astonishing Realities of America's Defense Establishment (New York: Harper & Row, 1986), 138-142. Also see Halperin, Bureaucratic Politics and Foreign Policy, 43-46.

²³Edmund Beard, Developing the ICBM: A Study in Bureaucratic Politics (New York: Columbia University Press, 1976). Regarding Air Force efforts to bolster the manned bomber's fortunes in the "missile age," see Robert E. Hunter, "The Politics of U.S. Defense 1963: Manned Bombers versus Missiles," in Readings in American Foreign Policy, 191-202.

ballistic-missile submarine.²⁴ In their view, Sapolsky wrote, "submarines were meant to sink ships with torpedoes, not to blast land targets with missiles; submarine warfare was a battle of wits against an opponent and not a demonstration of technological sophistication."²⁵

In light of the role SAC's essence played in the politics of Peacekeeper rail garrison and its importance in numerous other cases, Proposition 3 should be amended to read as follows:

The mission and essence of the subunit of the military service with the ultimate responsibility in the military for the use of the new weapon along with the power of that subunit are more important factors in the success of a weapon system (i.e., the attractiveness of the weapon to draw support within the Pentagon as compared to other alternatives) than the larger strategic and force posture considerations of U.S. national security policy.

Likewise, Proposition 12 should state that a weapon system is more likely to be procured and deployed when "the missions and essence of the organization responsible for the new weapon converges with the capability of the weapon."

²⁴Harvey M. Sapolsky, The Polaris System Development: Bureaucratic and Programmatic Success in Government (Cambridge: Harvard University Press, 1972), 17-18.

²⁵Ibid., 18.

Finally, this case study contradicts Proposition 10 and reinforces the findings of others that policy concerns rather than parochialism have generally motivated the Congress' interest in nuclear weapons, especially for "weapon systems that depart from declaratory doctrine or threaten to cross major thresholds in weapons development."²⁶ As Warner Feld and John Wildgen put it, "whether or not the technical characteristics of the MX square with its strategic and political goals is what most of the MX debate is all about."²⁷ Thus, from 1987 through 1990 ten amendments were offered on the House and Senate floors that sought to either reduce or eliminate funding for Peacekeeper rail garrison. Moreover, the amount approved for ICBM modernization was less than the administration requested during each of these years, often substantially so.

Strengthened by an increased recognition of the role

²⁶James M. Lindsay, Congress and Nuclear Weapons (Baltimore: Johns Hopkins University Press, 1991), 86.

²⁷Werner J. Feld and John K. Wildgen, Congress and National Defense: The Politics of the Unthinkable (New York: Praeger Publishers, 1985), 63. Also see Holland and Hoover, The MX Decision, 252; Robert Bernstein and William Anthony, "The ABM Issue in the Senate, 1968-1970: The Importance of Ideology," American Political Science Review 68, no. 3 (September 1974): 1198-1206; and Richard Fleisher, "Economic Benefit, Ideology, and Senate Voting on the B-1 Bomber," American Politics Quarterly 13, no. 13 (April 1985): 200-211.

nonbureaucratic forces and actors can play and the amendments suggested by this study, the bureaucratic politics model undoubtedly will remain an essential tool for describing, explaining, and predicting the weapons acquisition process. The same, however, cannot be said for rail garrison's direct applicability to weapons procurement in the current post-Cold War environment. As this case study made clear, the politics of Peacekeeper rail garrison hinged on the executive branch's desire to deploy 100 Peacekeepers and the problems it encountered trying to sell that program to a legislature divided between supporters of the Peacekeeper, the SICBM, and arms control. In order to deploy the former, whether in silos or the rail-garrison mode, each of these groups had to be offered at least some of what it wanted as an incentive for cooperation. As Paul Stockton put it, "logrolling allowed arms controllers and force modernization advocates to trade support for their respective goals and build winning coalitions for proposals that accommodated the interests of both."²⁸

While this kind of coalition-building was possible during an era when defense budgets were on the rise and

²⁸Paul N. Stockton, "The New Game on the Hill: The Politics of Arms Control and Strategic Force Modernization," International Security 16, no. 2 (Fall 1991): 158.

the Soviet threat loomed large, declining defense budgets and the end of the Cold War seriously weakened this linkage. In the current environment, Stockton noted, "force modernizers face more difficulties in making their case, and also in keeping some of their colleagues from joining with liberals to slash modernization spending." At the same time, "the rise of budget-cutting as an arms control objective, and the declared willingness of the Soviet Union to ban entire classes of weapons," have left arms controllers in a much stronger position.²⁹

Although Stockton's analysis is correct regarding coalition-building within the Congress, the changes occurring on Capitol Hill are only half of the story. The other half consists of changing perceptions within the executive branch and the military. With the Cold War over and defense budgets declining, strategic modernization has taken a back set to more pressing defense needs. Even the Air Force, which abandoned ICBM modernization for the B-2 bomber, has shifted its attention to weapon systems like the Advanced Tactical Fighter. These changes are consistent with Halperin's observation that "dramatic changes . . . , either at home or abroad, may become so sharp that they intrude upon the

²⁹Ibid., 166.

perceptions of even those with fixed ideas of foreign policy, [thereby] leading to changes in shared images."³⁰

Part of this new shared image is a long-awaited consensus on strategic modernization and the future of land-based missiles. It now appears that the sea-based leg of the triad will consist of 18 Trident ballistic-missile submarines, the last of which was approved as part of the FY 1991 defense budget. Production of the B-2, originally envisioned as a force of 132 aircraft, will end after just 15-20 bombers.³¹ The ICBM force, the most contentious leg of the triad, will continue to consist of silo-based missiles, although the Peacekeeper's future remains uncertain. Not only has the U.S. halted the production of spare missiles for flight testing, thereby limiting the Peacekeeper's service life, the Bush administration also has offered to deactivate the missile as part of an arms control initiative aimed at enticing the former Soviet Union to eliminate its still formidable

³⁰Halperin, Bureaucratic Politics and Foreign Policy, 14.

³¹The Congress thus far has approved the construction of 15 B-2s. In his State of the Union Address, however, President Bush indicated his desire to deploy 20 of the stealthy bombers, enough for two squadrons ("We Are Going to Lift This Nation Out of Hard Times," Washington Post, 29 January 1992, A14).

arsenal of MIRVed ICBMs.³² Although such an agreement would enhance crisis stability and further diminish the threat of nuclear war, this somehow seems an ignominious ending for "the most hotly contested weapon in the annals of U.S. defense policy."³³

³²Ibid.

³³Lindsay, Congress and Nuclear Weapons, 11.

SOURCES CITED

Books

- Allison, Graham. Essence of Decision: Explaining the Cuban Missile Crisis. Boston: Little, Brown & Co., 1971.
- _____, and Peter Szanton. Remaking Foreign Policy: The Organizational Connection. New York: Basic Books, 1976.
- Armacost, Michael. The Politics of Weapons Innovation: The Thor-Jupiter Controversy. New York: Columbia University Press, 1969.
- Art, Robert J. The TFX Decision: McNamara and the Military. Boston: Little, Brown & Co., 1968.
- Ball, Desmond. Politics and Force Levels: The Strategic Missile Program of the Kennedy Administration. Berkeley: University of California Press, 1980.
- Beard, Edmund. Developing the ICBM: A Study in Bureaucratic Politics. New York: Columbia University Press, 1976.
- Betts, Richard K. Surprise Attack: Lessons for Defense Planning. Washington, D.C.: Brookings Institution, 1982.
- Blechman, Barry M. The Politics of National Security: Congress and U.S. Defense Policy. New York: Oxford University Press, 1990.
- Brodie, Bernard. The Absolute Weapon. New York: Harcourt Brace, 1946.
- Builder, Carl H. The Masks of War: American Military Styles in Strategy and Analysis. Baltimore: Johns Hopkins University Press, 1989.
- Cannon, Lou. President Reagan: The Role of a Lifetime. New York: Simon & Schuster, 1991.

Destler, I.M. Presidents, Bureaucrats and Foreign Policy: The Politics of Organizational Reform. Princeton: Princeton University Press, 1974.

The Discussion Group on Strategic Policy. Detering Through the Turn of the Century: A Report of the Discussion Group on Strategic Policy. Washington, D.C.: Center for Strategic and International Studies and Johns Hopkins Foreign Policy Institute, 1989.

Dixon, James H., and Associates. National Security Policy Formulation: Institutions, Processes, and Issues. Lanham, MD: University Press of America, 1984.

Dougherty, James E., and Robert L. Pfaltzgraff, Jr. Contending Theories of International Relations. Philadelphia: J.B. Lippincott Co., 1971.

Edwards, John. Superweapon: The Making of the MX. New York: W.W. Norton & Co., 1982.

Feld, Werner J., and John K. Wildgen. Congress and National Defense: The Politics of the Unthinkable New York: Praeger Publishers, 1985.

George, Alexander L., and Richard Smoke. Deterrence in American Foreign Policy: Theory and Practice. New York: Columbia University Press, 1974.

Gold, David, Christopher Paine, and Gail Shields. Misguided Expenditure: An Analysis of the Proposed MX Missile System. New York: Council on Economic Priorities, 1981.

Gray, Colin S. The Future of Land Based Missile Forces. London: International Institute for Strategic Studies, 1977.

_____. The MX ICBM and National Security. New York: Praeger Publishers, 1981.

Greenwood, Ted. Making the MIRV: A Study of Defense Decision Making. Cambridge, MA: Ballinger Publishing Co., 1975.

Halperin, Morton H., with the assistance of Priscilla Clapp and Arnold Kanter. Bureaucratic Politics and Foreign Policy. Washington, D.C.: Brookings Institution, 1974.

- Hilsman, Roger. The Politics of Policy Making in Defense and Foreign Affairs: Conceptual Models and Bureaucratic Politics. Englewood Cliffs, NJ: Prentice-Hall, 1987.
- Holland, Lauren H., and Robert A. Hoover. The MX Decision: A New Direction in U.S. Weapons Procurement Policy? Boulder, CO: Westview Press, 1985.
- Hoover, Robert A. The MX Controversy: A Guide to Issues and References. Claremont, CA: Regina Books, 1982.
- Huntington, Samuel P. The Common Defense: Strategic Programs in National Politics. New York: Columbia University Press, 1961.
- International Institute for Strategic Studies. The Military Balance, 1987-1988. London: International Institute for Strategic Studies, 1987.
- _____. The Military Balance, 1990-1991. London: International Institute for Strategic Studies, 1990.
- Lamb, Christopher J. How to Think About Arms Control, Disarmament, and Defense. Englewood Cliffs, NJ: Prentice-Hall, 1988.
- Lindsay, James M. Congress and Nuclear Weapons. Baltimore: Johns Hopkins University Press, 1991.
- Luttwak, Edward, and Stuart Koehl. The Dictionary of Modern War. New York: HarperCollins, 1991.
- National Academy of Sciences. Nuclear Arms Control: Background and Issues. Washington, D.C.: National Academy Press, 1985.
- Neal, Roy. Ace in the Hole: The Story of the Minuteman Missile. Garden City, NJ: Doubleday & Co., 1962.
- Neustadt, Richard E. Presidential Power: The Politics of Leadership from FDR to Carter. New York: Macmillan Publishing Co., 1980.
- Pertschuk, Michael. Giant Killers. New York: W.W. Norton & Co., 1986.

- Reagan, Ronald. An American Life. New York: Simon & Schuster, 1990.
- Ripley, Randall B., and Grace A. Franklin. Congress, the Bureaucracy, and Public Policy. 3d ed. Homewood, IL: Dorsey Press, 1984.
- Sapolsky, Harvey. The Polaris System Development: Bureaucratic and Programmatic Success in Government. Cambridge: Harvard University Press, 1972.
- Schneider, Barry R., Colin S. Gray, and Keith B. Payne, eds. Missiles for the Nineties: ICBMs and Strategic Policy. Boulder, CO: Westview Press, 1984.
- Scoville, Herbert. MX: Prescription for Disaster. Cambridge: MIT Press, 1981.
- Stewart, Blair. Comparing Rail Mobile Minuteman and Peacekeeper Rail Garrison. Reston, VA: Center for National Program Evaluation, September 1989.
- Stubbing, Richard A., with Richard A. Mendel. The Defense Game: An Insider Explores the Astonishing Realities of America's Defense Establishment. New York: Harper & Row, 1986.
- Viotti, Paul R., and Mark V. Kauppi. International Relations Theory: Realism, Pluralism, Globalism. New York: Macmillan Publishing Co., 1987.
- Weinberger, Caspar W. Fighting for Peace: Seven Critical Years in the Pentagon. New York: Warner Books, 1990.
- Woodward, Bob. The Commanders. New York: Simon & Schuster, 1991.

Articles

- "Air Force Reverses Position, Backs Horizontal MX Basing." Aviation Week and Space Technology, 10 March 1980, 21-22.
- Allison, Graham, and Morton Halperin. "Bureaucratic Politics: A Paradigm and Some Policy Implications." In Theory and Policy in International Relations, ed. Raymond Tanter and Richard H. Ullman, 40-79. Princeton: Princeton University Press, 1972.

Almond, Peter. "Air Force Defends MX Force." Washington Times, 1 March 1989, A7.

_____. "Bush Wants to Build MX and Midgetman." Washington Times, 24 April 1989, A3.

Amouyal, Barbara. "ICBM Freeze Would Save \$30 Billion." Defense News, 11 June 1990, 1 and 26.

Apple, R.W., Jr. "Washington Quiet as Wall St. Panics." New York Times, 20 October 1987, D32.

Art, Robert J. "Bureaucratic Politics and American Foreign Policy: A Critique." Policy Sciences 4, no. 4 (December 1973): 467-490.

Bacon, Kenneth H. "Plan to Bury Missiles in Vast Tunnel System Sparks Defense Debate." Wall Street Journal, 14 March 1978, 1 and 21.

Ball, Desmond. "The Development of the SIOP, 1960-1983." In Strategic Nuclear Targeting, ed. Desmond Ball and Jeffrey Richelson, 57-83. Ithica: Cornell University Press, 1986.

_____. "The MX Basing Decision." Survival 22, no. 2 (March/April 1980): 58-65.

_____, and Robert C. Toth. "Revising the SIOP: Taking War-Fighting to Dangerous Extremes." International Security 14, no. 4 (Spring 1990): 65-92.

Bedard, Paul. "Bush Offers Concession if Missiles Are Approved." Washington Times, 21 June 1989, A4.

Berkowitz, Marc. "A Spetsnaz Threat to Rail-MX?" Armed Forces Journal International (September 1989): 72-74.

Bernstein, Robert A., and William W. Anthony. "The ABM Issue in the Senate, 1968-1970: The Importance of Ideology." American Political Science Review 68, no. 3 (September 1974): 1198-1206.

Binnendijk, Hans. "START: A Preliminary Assessment." Washington Quarterly 11, no. 4 (Autumn 1988): 5-18.

Blustein, Paul. "Bush, Hill Leaders Unveil Budget Pact." Washington Post, 15 April 1989, A1 and A4.

- Brown, Michael E. "The Case Against the B-2." International Security 15, no. 1 (Summer 1990): 129-153.
- Bundy, McGeorge. "MX Paper: Appealing, But Mostly Appalling." New York Times, 17 April 1983, E19.
- "Bush, Congressional Leaders Announce Agreement." Congressional Quarterly Weekly Report, 6 October 1990, 3247-3248.
- Caldwell, Dan. "Bureaucratic Foreign Policy-Making." American Behavioral Scientist 21, no. 1 (September/October 1977): 87-110.
- Calmes, Jacqueline. "Aspin Makes Comeback at Armed Services." Congressional Quarterly Weekly Report, 24 January 1987, 139-142.
- _____. "Aspin Ousted as Armed Services Chairman." Congressional Quarterly Weekly Report, 10 January 1987, 83-85.
- _____. "Four Battling for Armed Services Chairmanship." Congressional Quarterly Weekly Report, 17 January 1987, 103-104.
- Capaccio, Tony. "Air Force Ponders Terminating the MX Rail Garrison Missile." Defense Week, 10 December 1990, 1 and 3.
- Chain, John T. "Rail Garrison Basing for Peacekeeper." National Defense 72, no. 435 (February 1988): 31-34.
- Craig, Paul, David Hafemeister, Art Hobson, Ruth H. Howes, Barbara G. Levi, John Michener, Mark Sakitt, Leo Sartori, Valerie Thomas, and Peter D. Zimmerman. "Evaluation: Midgetman or MX in Superhard Silos." In The Future of Land-Based Strategic Missiles, ed. Barbara G. Levi, Mark Sakitt, and Art Hobson, 63-67. New York: American Institute of Physics, 1989.
- Curtis, Willie. "The Case for Mobile Missiles." Armed Forces and Society 15, no. 4 (Summer 1989): 593-605.
- "Defense Bill Signed by Bush Sets 1996 as Target for SDI Deployment." Washington Post, 7 December 1991, A8.

"Defense Issues Checklist." Congressional Quarterly Weekly Report, 29 July 1989, 1973.

De Maria, Lawrence J. "Stocks Plunge 508 Points, A Drop of 22%; 604 Million Volume Nearly Doubles Record." New York Times, 20 October 1987, A1 and D34.

"Democrats on Defense (Cont.d)." Washington Post, 30 July 1989, C6.

Devroy, Ann, and Helen Dewar. "Bush Pledges Major Increase in Midgetman Missile Funds." Washington Post, 21 June 1989, A8.

Dewar, Helen. "Bush's 'Two-Missile' Proposal Jeopardized." Washington Post, 19 June 1989, A4.

Dionne, E.J., Jr. "Bush is Elected by a 6-5 Margin with Solid G.O.P. Base in South; Democrats Hold Both Houses." New York Times, 9 November 1988, A1 and A25.

Dobbs, Michael. "Soviets Complete Pullout From War in Afghanistan." Washington Post, 16 February 1989, A1 and A44.

Dougherty, Russell E. "The Value of ICBM Modernization." International Security 12, no. 2 (Fall 1987): 163-172.

Eckstein, Harry. "Case Study and Theory in Political Science." In Handbook of Political Science. Vol. 7, Strategies of Inquiry, ed. Fred I. Greenstein and Nelson W. Polsby, 79-137. Reading, MA: Addison-Wesley Publishing Co., 1975.

Feinstein, Lee. "CFE Treaty Hits Potholes in Road to Ratification." Arms Control Today 21, no. 2 (March 1991): 24-25 and 28.

_____. "Wrangling Over CFE Data Could Complicate Ratification." Arms Control Today 21, no. 1 (January/February 1991): 22.

"First Details of Minuteman Configuration." Aviation Week, 14 September 1959, 33-34.

Fisher, Marc. "A New Holiday for a New Germany." Washington Post, 4 October 1990, A1 and A40.

Fleisher, Richard. "Economic Benefit, Ideology, and Senate Voting on the B-1 Bomber." American Politics Quarterly 13, no. 2 (April 1985): 200-211.

Frankel, Glenn. "East Europeans Seek Full Pullout of Soviet Troops." Washington Post, 19 January 1990, A14 and A16.

Freedman, Lawrence. "Logic, Politics and Foreign Policy Processes: A Critique of the Bureaucratic Politics Model." International Affairs 52, no. 3 (July 1976): 434-449.

Fridling, Barry E., and John R. Harvey. "On the Wrong Track? An Assessment of MX Rail Garrison Basing." International Security 13, no. 3 (Winter 1988/89): 113-141.

Fuerbringer, Jonathan. "Agreement Signed to Reduce Deficit \$30 Billion in 1988." New York Times, 21 November 1987, 1 and 48.

_____. "Democrats Urge Deficit-Cutting Plan." New York Times, 20 October 1987, D32.

Garwin, Richard L. "Multiple Aimpoints Not the Answer." Nature 278 (15 March 1979): 204-205.

Gertz, Bill. "U.S. Satellites Detect Marked Increase in Mobile Soviet ICBMs." Washington Times, 14 October 1988, A6.

Goldberg, Cary. "Republic Secedes From Soviet Union." Washington Times, 12 March 1990, A1 and A6.

Gordon, Michael R. "Chief of Air Command Questions Bush Plan to Cut Nuclear Missiles." New York Times, 5 May 1989, 1 and 4.

_____. "Officials Say Bush Will Back a Force of Mobile Missiles." New York Times, 22 April 1989, 1 and 10.

_____. "Soviets Rebuffed by Cheney on Plan Curbing Sea Arms." New York Times, 16 April 1990, A1 and A8.

_____. "U.S. and Soviets Differ Over Ban on Multiple-Warhead Missiles." New York Times, 8 April 1990, 1 and 14.

- Gore, Albert, Jr. "We Need Midgetman." Washington Post, 22 April 1986, A14.
- Gray, Colin S., and Keith B. Payne. "Victory is Possible." Foreign Policy, no. 39 (Summer 1980): 14-27.
- Gray, Robert C. "The Bush Administration and Mobile ICBM: A Framework for Evaluation." Survival 31, no. 5 (September/October 1989): 415-431.
- Grier, Peter. "Mobile Missile Debate Heating Up." Christian Science Monitor, 3 April 1989, 8.
- Haass, Richard. "The Role of the Congress in American Security Policy." In American Defense Policy. 5th ed., ed. John F. Reichart and Steven R. Sturm, 546-578. Baltimore: Johns Hopkins University Press, 1982.
- Halloran, Richard. "Air Force Commander Wants to Place MX Missiles on Trains." New York Times, 27 October 1986, A18.
- _____. "White House Seeks Funds for Basing MX on Train Cars." New York Times, 20 December 1986, 1 and 12.
- Halperin, Morton H., and Arnold Kanter. "The Bureaucratic Perspective: A Preliminary Framework." In Readings in American Foreign Policy: A Bureaucratic Perspective, ed. Morton H. Halperin and Arnold Kanter, 1-42. Boston: Little, Brown & Co., 1973.
- Healy, Melissa. "Air Force Offers to Cancel MX Missiles on Rail Cars." Los Angeles Times, 24 April 1990, A1 and A22.
- _____. and Paul Houston. "B-2: Visible Target for Budget Ax." Los Angeles Times, 18 March 1990, A1 and A18.
- Hermann, Charles F. "Crisis Stability in Soviet-American Strategic Relations." In American Defense Annual: 1988-1989, ed. Joseph Kruzell, 211-230. Lexington, MA: Lexington Books, 1988.
- Hiatt, Fred. "Gorbachev Pledges Wide-Ranging Nuclear Cuts." Washington Post, 6 October 1991, A1 and A33.

- Hicks, Donald A. "ICBM Modernization: Consider the Alternatives." International Security 12, no. 2 (Fall 1987): 173-181.
- Hobson, Art. "Survivability of Superhard Silos." In The Future of Land-Based Strategic Missiles, ed. Barbara G. Levi, Mark Sakitt, and Art Hobson, 267-280. New York: American Institute of Physics, 1989.
- Hoffman, David. "Bush Attempting to Capitalize on Major Changes in Moscow." Washington Post, 28 September 1991, A19.
- Holland, Lauren. "The Uses of NEPA in Defense Policy Politics: Public and State Involvement in the MX Missile Project." Social Science Journal 21, no. 3 (July 1984): 53-71.
- Hooks, Janet. "Senate Begins Defense Debate as GOP Abandons Filibuster." Congressional Quarterly Weekly Report, 12 September 1987, 2195.
- Hotz, Robert. "Moving Toward Mobility." Aviation Week, 19 December 1960, 21.
- "House Vote 133." Congressional Quarterly Weekly Report, 14 May 1988, 1342.
- "House Vote 141." Congressional Quarterly Weekly Report, 23 May 1987, 1104-1105.
- "House Vote 172." Congressional Quarterly Weekly Report, 29 July 1989, 1994-1995.
- "House Vote 440 and Senate Vote 384." Congressional Quarterly Weekly Report, 21 November 1987, 2908-2910.
- "House Votes 106, 107, 108, and 109." Congressional Quarterly Weekly Report, 7 May 1988, 1256-1257.
- "House Votes 118 and 119." Congressional Quarterly Weekly Report, 16 May 1987, 1020-1021.
- "House Votes 169 and 171." Congressional Quarterly Weekly Report, 29 July 1989, 1994-1995.
- "How Strikes Delay the Missile Program." U.S. News and World Report, 1 August 1960, 65-66.

Hunter, Robert E. "The Politics of U.S. Defense 1963: Manned Bombers versus Missiles." In Readings in American Foreign Policy: A Bureaucratic Perspective, ed. Morton H. Halperin and Arnold Kanter, 191-202. Boston: Little, Brown & Co., 1973.

"'I Have the Briefest and Most Difficult Speech in My Life.'" Washington Post, 21 December 1991, A39.

Ingersoll, Bruce. "ICG Offers Trial Run Here: Deploy MX Missiles by Train, U.S. Urged." Printed in U.S. Congress. Senate. Rail Basing Mode for the MX Missile. 97th Cong., 1st sess. Congressional Record (11 December 1981), vol. 127, pt. 23.

Isaacs, John. "The World Changes--The Defense Budget Doesn't." Arms Control Today 19, no. 10 (January 1990): 17-20.

James, Jesse. "Conventional Forces Talks Open on Positive Note in Vienna." Arms Control Today 19, no. 3 (April 1989): 23 and 28.

Kaplan, Fred. "Scowcroft-Cheney Missile Rift Involves More Than Just Money." Boston Globe, 22 January 1990, 3.

Katzenbach, Edward J. "The Horse Cavalry in the Twentieth Century: A Study in Policy Response." In Readings in American Foreign Policy: A Bureaucratic Perspective, ed. Morton H. Halperin and Arnold Kanter, 172-190. Boston: Little, Brown & Co., 1973.

Kaufman, Henry. "History Lessons We Failed to Learn: The Economic Forces Behind the Collapse." New York Times, 25 October 1987, C3.

Kenworthy, Tom. "House Democrats Balk at Missile Deal." Washington Post, 27 April 1989, A4.

Korb, Lawrence J., and Stephen Daggett. "The Defense Budget and Strategic Planning." In American Defense Annual: 1988-1989, ed. Joseph Kruzel, 43-66. Lexington, MA: Lexington Books, 1988.

- Kozak, David C. "The Bureaucratic Politics Approach: The Evolution of the Paradigm." In Bureaucratic Politics and National Security: Theory and Practice, ed. David C. Kozak and James M. Keagle, 3-15. Boulder, CO: Lynne Rienner Publishers, 1988.
- Krasner, Stephen D. "Are Bureaucracies Important? (Or Allison Wonderland)." Foreign Policy, no. 19 (Summer 1972): 159-179.
- Lenorovitz, Jeffrey M. "Blast Effects on Missile Site Studied." Aviation Week and Space Technology, 18 September 1978, 61-62.
- Lindblom, Charles E. "The Science of 'Muddling Through.'" Public Administration Review 19, no. 2 (Spring 1959): 79-88.
- Lindsay, James M. "Congress and Defense Policy: 1961-1986." Armed Forces and Society 13, no. 3 (Spring 1987): 371-401.
- Lowi, Theodore J. "Making Democracy Safe for the World: National Politics and Foreign Policy." In Domestic Sources of Foreign Policy, ed. James N. Rosenau, 295-331. New York: Free Press, 1967.
- Lynch, David J. "Air Force Ignores Carlucci Support of Putting MX on Rails." Defense Week, 8 February 1988, 11.
- _____. "Air Force Leans Toward Densepack Rerun on MX." Defense Week, 11 August 1986, 1 and 10.
- _____. "Air Force Plans Midgetman's Death." Defense Week, 14 December 1987, 1 and 6.
- _____. "Air Force Wary of 'Carry Hard' Blueprint." Defense Week, 13 February 1989, 1 and 13.
- _____. "Boeing Wins \$235 Million Job to Begin MX Rail Garrison Work." Defense Week, 21 September 1987, 5.
- _____. "Carlucci Offers Olive Branch to Hill." Defense Week, 16 November 1987, 2.
- _____. "Cheney Budget Signals Return of 'The Whiz Kids.'" Defense Week, 8 May 1989, 1 and 8.

- _____. "Cheney Tells Where Budget Ax Fell." Defense Week, 1 May 1989, 5.
- _____. "DoD Unveils Latest Strategic Defense." Defense Week, 12 February 1990, 3.
- _____. "Gaffney Favors Limited Anti-Missile Defense." Defense Week, 2 February 1987, 2.
- _____. "Invisible Bomber Was Seen in California Desert; Several Thousand on Hand." Defense Week, 28 November 1988, 6-7.
- _____. "Price of Iffy Midgetman Drops." Defense Week, 28 November 1988, 1 and 11.
- _____. "The Rap on Cap: He Let the Uniforms Decide All." Defense Week, 9 November 1987, 2.
- _____. "Report Puts Midgetman Cost Below Official Figure." Defense Week, 21 February 1989, 1-2.
- Mandelbaum, Michael. "The Reagan Administration and the Nature of Arms Control." In American Defense Annual: 1988-1989, ed. Joseph Kruzel, 193-210. Lexington, MA: Lexington Books, 1988.
- Maroni, Alice. "The Defense Budget." In Presidential Leadership and National Security: Style, Institutions, and Politics, ed. Sam C. Sarkesian, 193-206. Boulder, CO: Westview Press, 1984.
- Marshall, Darrell C. "MX--An Effective and Enduring Basing Mode." Unpublished paper, 21 May 1983.
- Masland, Tom, with Fred Coleman, Carla Groudin, and John Barry. "Bloodshed in Lithuania." Newsweek, 21 January 1991, 38-40.
- McCune, Timothy, and Eric Rosenberg. "Cheney Unveils New Plans for Six Warplanes." Defense Week, 30 April 1990, 7 and 13.
- McFarlane, Robert C., with Richard Saunders and Thomas C. Shull. "The National Security Council: Organization for Policy Making." In The Presidency and National Security Policy, ed. R. Gordon Hoxie, 261-273. New York: Center for the Study of the Presidency, 1984.

"Mobility Designed into Minuteman." Aviation Week, 5 August 1959, 93-101.

Moore, Molly, and R. Jeffrey Smith. "Reagan Favors Midgetman." Washington Post, 20 December 1986, A2.

Morganthau, Tom, with Howard Fineman, Eleanor Clift, and Ann McDaniel. "Tower's Troubles." Newsweek, 6 March 1989, 16-22.

Nathan, James A., and James K. Oliver. "Bureaucratic Politics: Academic Windfalls and Intellectual Pitfalls." Journal of Political and Military Sociology 6, no. 1 (Spring 1978): 81-91.

Nelan, Bruce. "The Year of the People." Time, 1 January 1990, 46-53.

Nitze, Paul H. "Assuring Strategic Stability in an Era of Detente." Foreign Affairs 54, no. 2 (January 1976): 207-232.

_____. "Deterring Our Deterrent." Foreign Policy, no. 25 (Winter 1976-1977): 195-210.

Nunn, Sam. "Arms Control in the Last Year of the Reagan Administration." Arms Control Today 18, no. 2 (March 1988): 3-7.

_____. "Ban Mobile MIRVs." Washington Post, 19 September 1989, A27.

Oberdorfer, Dan, and Ann Devroy. "Bush and Gorbachev Postpone Summit." Washington Post, 29 January 1991, A1 and A4.

Odeen, Philip. "The Role of the National Security Council in Coordinating and Integrating US Defense and Foreign Policy." In American Defense Policy. 6th ed., ed. Schuyler Foerster and Edward N. Wright, 552-562. Baltimore: Johns Hopkins University Press, 1990.

"The Peace Dividend I Seek Is Not Measured in Dollars...." Washington Post, 28 September 1991, A23.

- Perlmutter, Amos. "The Presidential Political Center and Foreign Policy: A Critique of the Revisionist and Bureaucratic-Political Orientations." World Politics 27, no. 1 (October 1974): 87-106.
- "Price on B-2 No Longer Invisible." Defense Week, 3 January 1989, 11.
- Rasky, Susan R. "Coalition Opposes Funding of Missile." New York Times, 24 May 1989, A22.
- Raymond, Jack. "Plan for Missile on Rails Killed In Favor of Underground Sites." New York Times, 14 December 1961, 20.
- Reed, William S. "Minuteman Train Mockup Gains Approval." Aviation Week, 19 December 1960, 30-31.
- Reitz, Armin, and Barry Schneider. "Protestors Cannot Stop Peacekeeper." Defense News, 27 June 1988, 36.
- "Rep. Dicks Sees MX Rail Garrison Vulnerable to Cuts by Congress." Aerospace Daily, 8 May 1990, 217.
- Rice, Donald. "The Manned Bomber and Strategic Deterrence: The U.S. Air Force Perception." International Security 15, no. 1 (Summer 1990): 100-128.
- "Rice to Recommend Termination of Rail MX." Defense Daily, 10 December 1990, 389.
- Roberts, Robert. "Getting Safer in the '80s." Modern Railroads 42, no. 10 (October 1987): 33-35.
- Robinson, Clarence A., Jr. "MX Basing Delay Threatens SALT Ratification." Aviation Week and Space Technology, 20 November 1978, 20-22.
- _____. "Weinberger Pushes Strategic Airmobile MX Concept." Aviation Week and Space Technology, 3 August 1981, 16-18.
- Rosenbaum, David E. "Bush and Leaders Reach Agreement on Budget Outline." New York Times, 15 April 1989, 1 and 7.

- Rosenberg, Alan. "U.S. Nuclear War Planning, 1945-1960." In Strategic Nuclear Targeting, ed. Desmond Ball and Jeffrey Richelson, 35-56. Ithica: Cornell University Press, 1986.
- Rosenthal, Andrew. "A 'Guide for the Perplexed' on Missiles: Personalities, Economics, and Expediency." New York Times, 14 June 1989, A23.
- Russell, James A. "Pentagon Replaces Key Review Board." Defense Week, 7 July 1986, 5.
- Russett, Bruce. "Deterrence in Theory and Practice." The Jerusalem Journal of International Relations 8, nos. 2-3 (June 1986): 215-234.
- Scarborough, Rowan. "Cheney Answers Belie Phone Calls on MX Missiles." Washington Times, 2 May 1990, 3.
- _____. "Spratt Sorry He Blocked MX, Hopes Damage Will Be Corrected." Washington Times, 31 July 1989, A7.
- Schneider, Barry R. "The Case for Mobile ICBMs." Air Force Magazine 71, no. 2 (February 1988): 60-64.
- _____. "U.S. National Security Policy Implications of Superhard Silos." In Missiles for the Nineties: ICBMs and Strategic Policy, ed. Barry R. Schneider, Colin S. Gray, and Keith B. Payne, 42-60. Boulder, CO: Westview Press, 1984.
- Schoenfeld, Bruce. "Mobile Missiles Give Soviets Edge Over U.S." Defense Week, 10 June 1991, 9.
- Scowcroft, Brent, John Deutch, and R. James Woolsey. "Come and Get Us: Reagan's Latest Nuclear Strategy." New Republic, 18 April 1988, 16 and 18.
- _____, and R. James Woolsey, "Defense and Arms Control." In American Agenda: Report to the Forty-First President of the United States of America, ed. Gerald R. Ford and Jimmy Carter, 101-115. Camp Hill, PA; Book-of-the-Month Club, 1988.
- "Senate Vote 300." Congressional Quarterly Weekly Report, 10 October 1987, 2488-2489.

- Singer, J. David. "The Level-of-Analysis Problem in International Relations." In International Politics and Foreign Policy: A Reader in Research and Theory, ed. James Rosenau, 20-29. New York: Free Press, 1969.
- Slay, Alton D. "MX, a New Dimension in Strategic Deterrence." Air Force Magazine 59, no. 9 (September 1976): 44-49.
- Slocombe, Walter B. "Force Posture Consequences of the START Treaty." Survival 30, no. 5 (September/October 1988): 402-408.
- Smith, R. Jeffrey. "2 Missiles Unnecessary, Ex-Chiefs Say." Washington Post, 3 February 1990, A5.
- _____. "B-2 Bomber Fails Test of Stealthiness." Washington Post, 13 September 1991, A1 and A4.
- _____. "Bush Rules Out Push to Junk Mobile Missiles." Washington Post, 29 March 1990, A22.
- _____. "Cheney Urges Bush to Back MX Rail Plan." Washington Post, 19 April 1989, A1 and A6.
- _____. "Soviet Advisor Hints at Potential Mobile Missile Deal." Washington Post, 24 July 1989, A18.
- _____. , and David Hoffman. "Bush Urged to Choose Two Mobile Missiles." Washington Post, 20 April 1989, A16.
- Steinbruner, John D., and Thomas M. Garwin. "Strategic Stability: The Balance Between Prudence and Paranoia." International Security 1, no. 1 (Summer 1976): 138-181.
- Stevens, Paul Schott. "The National Security Council: Past and Prologue." Strategic Review 27, no. 1 (Winter 1989): 55-62.
- Stockton, Paul N. "Arms Development and Arms Control: The Strange Case of the MX Missile." In American Politics and Public Policy: Seven Case Studies, ed. Allan P. Sindler, 225-253. Washington, D.C.: CQ Press, 1982.

- _____. "The New Game on the Hill: The Politics of Arms Control and Strategic Force Modernization." International Security 16, no. 2 (Fall 1991): 146-170.
- Strobel, Warren. "Bush Seen Hedging Choice Between MX, Midgetman." Washington Times, 14 February 1989, A3.
- _____. "White House Approves Plan to Base MX Missiles on Rails." Washington Times, 19 December 1986, 1A and 10A.
- Stumpe, Warren R. "Launching: Where ICBMs Are Weak." Missiles and Rockets, 26 October 1959, 21-23.
- "Test Failure of B-2 Bomber Is Disclosed." Washington Post, 12 September 1991, A18.
- Toomay, John C. "Strategic Forces Rationale--A Lost Discipline?" International Security 12, no. 2 (Fall 1987): 193-202.
- "Top Pentagon Budget Board Seriously Mulls Killing Rail MX This Year." Inside the Air Force, 7 December 1990, 3.
- Towell, Pat. "After Setbacks in the House, Bush Playing Catch-Up." Congressional Quarterly Weekly Report, 29 July 1989, 1972-1978.
- _____. "Bush Team Takes a Hit on SDI, But Prevails on Other Items." Congressional Quarterly Weekly Report, 4 November 1989, 2964.
- _____. "Carlucci Brings a Softer Tone to Hill Discussion of Defense." Congressional Quarterly Weekly Report, 14 November 1987, 2798.
- _____. "Conference Over Defense Bill: Test of Political Muscle." Congressional Quarterly Weekly Report, 7 October 1989, 2656 and 2658.
- _____. "Defense Stalemate Drags On; Nunn Threatens to Drop Bill." Congressional Quarterly Weekly Report, 25 July 1987, 1667.
- _____. "'Dense Pack' Scheme for MX Faces First Congressional Test." Congressional Quarterly Weekly Report, 17 July 1982, 1702-1704.

- _____. "House Panel Votes \$306 Billion for Defense Authorization Bill." Congressional Quarterly Weekly Report, 11 April 1987, 672-677.
- _____. "MX: Ballistic Issue for Democrats." Congressional Quarterly Weekly Report, 29 April 1989, 977.
- _____. "Party Battle Lines Are Fuzzy in House Defense Debate." Congressional Quarterly Weekly Report, 17 June 1989, 1483-1486.
- _____. "The Politics of Procurement Creates New Alliances." Congressional Quarterly Weekly Report, 24 June 1989, 1557-1560.
- _____. "Reagan Facing Major Rebuffs in Defense Authorization Bill." Congressional Quarterly Weekly Report, 4 April 1987, 616.
- _____. "Sam Nunn: The Careful Exercise of Power." Congressional Quarterly Weekly Report, 14 June 1986, 1329-1333.
- _____. "Saving Some Projects, Panel Bites the Funding Bullet." Congressional Quarterly Weekly Report, 1 July 1989, 1637-1640.
- _____. "Tower Challenges New Air-Mobile MX Plan." Congressional Quarterly Weekly Report, 8 August 1981, 1441-1442.
- _____. "Triggering a Process of Triage, Conferees Pare Weapons." Congressional Quarterly Weekly Report, 11 November 1989, 3087-3093.
- Trainor, Bernard E. "50 MX Missiles Are to Be Shifted to Trains in 7 States." New York Times, 30 November 1989, B20.
- Ulsamer, Edgar. "Missiles and Targets." Air Force Magazine 70, no. 7 (July 1987): 68-74.
- "USAF Analysis Attacks Airmobile MX Concept." Aviation Week and Space Technology, 17 August 1981, 30-31.
- "USAF Tests MX Breakout From Trench." Aviation Week and Space Technology, 20 November 1978, 23.

- Verba, Sidney. "Some Dilemmas in Comparative Research." World Politics 20, no. 1 (October 1967): 111-127.
- "'We Are Going to Lift This Nation Out of Hard Times.'" Washington Post, 29 January 1992, A14.
- Wehr, Elizabeth. "Summit Deal Fails to Forestall Automatic Cuts." Congressional Quarterly Weekly Report, 21 November 1987, 2860-2862.
- Welch, Larry D. "The MX: A Missile For All Reasons." New York Times, 20 September 1988, A29.
- Wilson, George C. "Air Force Acts to Break ICBM Impasse." Washington Post, 24 March 1989, A1 and A6.
- _____. "Cheney Scolds Air Force Chief for Hill Contacts on Missiles." Washington Post, 25 March 1989, A1 and A8.
- _____. "Rail-Mobile MX is Pressed by Carlucci." Washington Post, 19 May 1988, A1 and A40.
- Wirtz, James J. "The MX Rail Garrison: How Not to Pick a Weapon." Orbis 34, no. 3 (Summer 1990): 359-370.
- Witkin, Richard. "Air Force Speeds Rail-Car Missile." New York Times, 15 November 1959, 29.
- Woolsey, R. James. "The Politics of Vulnerability: 1980-83." Foreign Affairs 62, no. 4 (Spring 1984): 805-819.
- Zimmerman, Peter D. "Rail Garrison MX." In The Future of Land-Based Strategic Missiles, ed. Barbara G. Levi, Mark Sakitt, and Art Hobson, 213-237. New York: American Institute of Physics, 1989.
- Zirkle, Robert A. "Rail-Garrison MX...No Way to Run a Railroad." Arms Control Today 17, no. 8 (October 1987): 17-21.
- _____. "Survivability of Rail-Garrison MX." Paper accompanying a letter from Charles A. Monfort to Jim Courter, 13 March 1987.

Interviews

- Boone, James W. Interview by author, 16 July 1991. Written notes. The Federal Railroad Administration, Washington, D.C.
- Capella, William L. Telephone interview by author, 28 June 1991. Written notes. The Air Force Inspection and Safety Center, Norton AFB, CA.
- Carlucci, Frank C. Telephone interview by author, 21 November 1991. Written notes. The Carlyle Group, Washington, D.C.
- Chain, John T. Telephone interview by author, 20 June 1991. Written notes. Burlington Northern Railroad, Fort Worth, TX.
- Crowe, William R., Jr. Interview by author, 5 August 1991. Written notes. The Center for Strategic and International Studies, Washington, D.C.
- DeGrasse, Bob. Interview by author, 13 September 1991. Written notes. Longworth House Office Building, Washington, D.C.
- Douglass, John W. Interview by author, 19 July 1991. Written notes. The Pentagon, Washington, D.C.
- Dunmire, Dan. Interview by author, 19 July 1991. Written notes. The Pentagon, Washington, D.C.
- Ellis, Andy. Interview by author, 13 December 1991. Written notes. House Armed Services Committee, Washington, D.C.
- Gaffney, Frank J. Interview by author, 6 June 1991. Written notes. The Center for Security Policy, Washington, D.C.
- Hicks, Donald A. Interview by author, 5 June 1991. Written notes. Hicks and Associates, Inc., McLean, VA.
- Hoehn, Bill. Interview by author, 12 August 1991. Written notes. Russell Senate Office Building, Washington, D.C.

Isaacs, John. Interview by author, 27 November 1991.
Written notes. Council for a Livable World,
Washington, D.C.

Knoblock, Kevin. Interview by author, 6 December 1991.
Written notes. Union of Concerned Scientists,
Washington, D.C.

Mammen, Jim. Interview by author, 11 April 1991. Written
notes. The Pentagon, Washington, D.C.

Marshall, Darrell C. Interview by author, 10 June 1991.
Written notes. BDM International, Arlington, VA.

Mawby, Mike. Interview by author, 6 December 1991.
Written notes. Common Cause, Washington, D.C.

Maxwell, Thomas. Telephone interview by author, 2 May
1991. Written notes. Aerojet ASRM Division, Iuka,
MS.

_____. Telephone interview by author, 6 November 1991.
Written notes. Aerojet ASRM Division, Iuka, MS.

May, Charles A., Jr. Interview by author, 25 April 1991.
Written notes. The Pentagon, Washington, D.C.

McMains, Robert E. Interview by author, 3 July 1991.
Written notes. Science Applications International
Corporation, McLean, VA.

McMullen, Tom. Telephone interview by author, 9 May 1991.
Written notes. Aerojet ASRM Division, Iuka, MS.

Monfort, Charles. Interview by author, 3 December 1991.
Written notes. Rayburn House Office Building,
Washington, D.C.

Perle, Richard N. Telephone interview by author, 26 June
1991. Written notes. The American Enterprise
Institute, Washington, D.C.

Sevin, Eugene. Interview by author, 10 June 1991.
Written notes. The Pentagon, Washington, D.C.

Weinberger, Caspar A. Telephone interview by author, 26
June 1991. Written notes. Rogers and Wells,
Washington, D.C.

Welch, Larry D. Interview by author, 24 June 1991.
Written notes. The Institute for Defense Analyses,
Alexandria, VA.

Speeches

Aspin, Les. "President Bush and ICBM Modernization."
Address before the Institute for Foreign Policy
Analysis, Washington, D.C., 6 June 1989.

_____. "START and Land-Based ICBMs: The Need for
Modernization." Address before an unidentified
audience, 30 March 1989.

_____. "Strategic Policy Making for the Next Decade."
Address before the National Press Club, Washington,
D.C., 11 January 1989.

_____. "What the Air Force Ought to Know About What
the Congress Thinks About ICBM Modernization."
Address to the Air University, Maxwell AFB, Alabama,
21 March 1989.

Chain, John T. Address before the Institute for Foreign
Policy Analysis, Washington, D.C., 15 May 1989.

Cohen, William S. Address before the Institute for
Foreign Policy Analysis, Washington, D.C., 3 May
1989.

Gore, Albert, Jr. Address before the Institute for
Foreign Policy Analysis, Washington, D.C., 25 May
1988.

Lehman, Ron. Address before the Institute for Foreign
Policy Analysis, Washington, D.C., 17 May 1991.

McCurdy, Dave. Address before the Institute for Foreign
Policy Analysis, Washington, D.C., 1 May 1989.

McFarlane, Robert C. Address before the Institute for
Foreign Policy Analysis, Washington, D.C., March
1988.

Nunn, Sam. Address before the Institute for Foreign
Policy Analysis, Washington, D.C., 9 June 1988.

_____. Address before the Institute for Foreign Policy Analysis, Washington, D.C., 13 June 1989.

Scowcroft, Brent. "ICBM Modernization and the START Regime." Address before the Institute for Foreign Policy Analysis, Washington, D.C., 12 May 1988.

Welch, Larry D. Address before the Institute for Foreign Policy Analysis, Washington, D.C., 24 March 1988.

_____. Address before the Institute for Foreign Policy Analysis, Washington, D.C., 9 March 1989.

Letters

Aspin, Les to Caspar Weinberger, 19 August 1985.

_____. , and Bill Chappell, Jr. to Frank C. Carlucci, 15 March 1988.

_____. , William L. Dickinson, Bill Chappell, Jr., and Joseph M. McDade to their colleagues in the House of Representatives, "Honoring the Agreement on ICBM Modernization," 23 February 1988.

Beall, Donald R. to Dick Cheney, 3 January 1991.

Bush, George to Les Aspin, 24 July 1989.

Carlucci, Frank C. to John Warner, 7 July 1988.

_____. to Les Aspin, 2 February 1988.

_____. to Sam Nunn, 3 March 1988.

_____. to Sam Nunn, 11 May 1988.

Cheney, Dick to Les Aspin, 15 June 1989.

Cohen, William S., Sam Nunn, and Charles H. Percy to Ronald Reagan, 29 April 1983. Printed in U.S. Congress. Senate. The MX Missile System. 98th Cong., 1st sess. Congressional Record. Vol. 129, no. 57. Daily ed. (2 May 1983), S5750-S5751.

Conahan, Frank C. to John W. Warner, 7 July 1988.

Dickinson, William L., Samuel S. Stratton, and Dick Cheney to their colleagues in the House of Representatives, "Vote to Defeat the Frank and Hertel Amendments," 12 May 1987.

Dole, Bob, John Warner, Dan Coats, Strom Thurmond, John McCain, Malcolm Wallop, and Trent Lott to George Bush, 3 January 1991.

Gore, Albert, Jr., Norman D. Dicks, Les Aspin, Vic Fazio, Thomas S. Foley, Richard A. Gephardt, Dan Glickman, Joel Pritchard, and George O'Brien to Ronald Reagan, 2 May 1983. Printed in U.S. Congress. Extension of Remarks. 98th Cong., 1st sess. Congressional Record. Vol. 129, no. 58. Daily ed. (3 May 1983), E2049.

Hertel, Dennis M., John Spratt, and Nick Mavroules to their colleagues in the House of Representatives, "Don't Backtrack: Stop Rail MX," 28 April 1987.

_____, Joseph E. Brennan, George Hochbrueckner, Les Aspin, Pat Schroeder, and Frank McCloskey to their colleagues in the House of Representatives, "Stop Rail MX--Strike \$250 Million," 1 May 1987.

Levin, Carl, and Jim Exon to their colleagues in the Senate, 24 July 1991.

Mavroules, Nicholas, Les Aspin, Les AuCoin, Charles Bennett, Norm Dicks, Marvin Leath, Albert Bustamante, Barney Frank, John Spratt, Dave McCurdy, Beverly Byron, Vic Fazio, Frank McCloskey, Barbara Boxer, Steny Hoyer, Ed Markey, Thomas Downey, Tony Coelho, Marty Russo, and Richard Gephardt to George Bush, 6 February 1989.

_____, Les Aspin, Vic Fazio, Beverly B. Byron, Les AuCoin, Charles E. Bennett, Norman D. Dicks, Steny H. Hoyer, Tony Coelho, Marty Russo, Marvin Leath, John M. Spratt, Albert G. Bustamante, Richard A. Gephardt, Barney Frank, Thomas S. Foley, W.G. (Bill) Hefner, and Solomon P. Ortiz to Ronald Reagan, 15 October 1986.

McCard, Harold K. to Dick Cheney, undated.

Mondale, Walter to William Proxmire, 20 May 1983. Printed in U.S. Congress. Senate. MX Missile Basing Mode Funds. 98th Cong., 1st sess, S. Con. Res. 26. Congressional Record. Vol. 129, no. 71. Daily ed. (24 May 1983), S7314.

Nunn, Sam, John W. Warner, and Les Aspin to Frank C. Carlucci, 28 January 1988.

Reagan, Ronald to Robert Dole, 23 May 1985. Printed in U.S. Congress. Senate. National Defense Authorization Act for Fiscal Year 1986. 99th Cong., 1st sess., S. 1160. Congressional Record. Vol. 131, no. 69. Daily ed. (23 May 1985), S6997.

_____ to Sam Nunn, 12 May 1983. Printed in U.S. Congress. Senate. MX Missile Basing Mode Funds. 98th Cong., 1st sess., S. Con. Res. 26. Congressional Record. Vol. 129, no. 72. Daily ed. (25 May 1983), S7470.

Scowcroft, Brent to Sam Nunn, 9 December 1987.

The Secretary of Defense to the Secretary of the Air Force, "Peacekeeper Rail Garrison Milestone II Acquisition Decision Memorandum," 13 May 1988.

Warner, John, Strom Thurmond, Malcolm Wallop, Connie Mack, Bob Smith, Bob Dole, Steve Symms, John Seymour, and Jesse Helms to George Bush, 1 February 1991.

Welch, Larry D. to Sam Nunn, 21 April 1988. Printed in U.S. Congress. Senate. National Defense Authorization Act. 100th Cong., 2d sess., S. 2355. Congressional Record. Vol. 134, no. 66. Daily ed. (12 May 1988), S5545-S5546.

Government Documents

Aspin, Les. "Aspin Proposes 10-Year Strategic Program." News release, 11 January 1989.

_____. "Comparison of Costs: Midgetman, Rail-MX, and Other Strategic Systems." Fact sheet, 5 May 1988. Printed in U.S. Congress. Senate. National Defense Authorization Act. 100th Cong., 2d sess., S. 2355. Congressional Record. Vol. 134, no. 66. Daily ed. (12 May 1988), S5547.

_____. "Living with a Flat Strategic Budget: Modernization and Force Structure Options." Defense analysis, 7 February 1989.

_____. "Midgetman Costs Fall While MX Costs Rise." News release, 5 May 1988. Printed in U.S. Congress. Senate. National Defense Authorization Act. 100th Cong., 2d sess., S. 2355. Congressional Record. Vol. 134, no. 66. Daily ed. (12 May 1988), S5547.

Bush, George. "Address Before a Joint Session of the Congress on the State of the Union." Weekly Compilation of Presidential Documents 27, no. 5 (4 February 1991): 90-95.

_____. "Remarks at the Aspen Institute Symposium in Aspen, Colorado." Weekly Compilation of Presidential Documents 26, no. 31 (6 August 1990): 1190-1194.

Department of Defense Authorization Act. Statutes at Large. Vol. 99 (1985).

Department of Defense Authorization Act, 1986. Statutes at Large. Vol. 99 (1985).

Dickinson, William L. "Dickinson Says Midgetman Costs Four Times More Than Rail Garrison MX." News release, 23 May 1988.

Medalia, Jonathan E. MX, "Midgetman," and Minuteman Missile Programs. Washington, D.C.: Congressional Research Service, 1 March 1991.

The President's Commission on Strategic Forces. Report of the President's Commission on Strategic Forces. Washington, D.C.: GPO, April 1983.

_____. Untitled report. 21 March 1984.

Reagan, Ronald. "Intercontinental Ballistic Missile Modernization." Weekly Compilation of Presidential Documents 22, no. 51 (22 December 1986): 1658.

_____. "Message to the House of Representatives Returning Without Approval the National Defense Authorization Act, Fiscal Year 1989." Weekly Compilation of Presidential Documents 24, no. 31 (8 August 1988): 996-998.

Strategic Air Command. Office of the Historian. From Snark to Peacekeeper: A Pictorial History of Strategic Air Command Missiles. Offutt AFB, NE: Strategic Air Command, 1 May 1990.

_____. Office of the Historian. SAC Missile Chronology: 1939-1988. Offutt AFB, NE: Strategic Air Command, 1 May 1990.

U.S. Air Force. Final Environmental Impact Statement: Peacekeeper Rail Garrison Program. Vol. 1. Washington, D.C.: U.S. Air Force, February 1989.

_____. Minuteman Mobility Concept. October 1958.

_____. The United States Air Force Report to the 102nd Congress of the United States of America. Washington, D.C.: United States Air Force, Fiscal Year 1992/1993.

_____. Office of the Secretary of the Air Force. Strategic Division. The Peacekeeper in Rail Garrison Concept. Washington, D.C.: Office of the Secretary of the Air Force, April 1987.

U.S. Arms Control and Disarmament Agency. Office of Public Affairs. "The Strategic Arms Reduction Treaty: Basic Provisions of the Treaty." Fact sheet, 29 July 1991.

_____. Office of Public Affairs. "The Strategic Arms Reduction Treaty: Chronology." Fact sheet, 29 July 1991.

U.S. Congress. Extension of Remarks. A New Proposal for the START Talks. 98th Cong., 1st sess. Congressional Record. Vol. 129, no. 114. Daily ed. (4 August 1983), E4045-E4048.

_____. House. Approving the Obligation and Expenditure of Certain Funds for the MX Missile. 98th Cong., 1st sess., H. Con. Res. 113. Congressional Record. Vol. 129, no. 71. Daily ed. (23 May 1983), H3180-H3202.

_____. House. Approving the Obligation and Expenditure of Certain Funds for the MX Missile. 98th Cong., 1st sess., H. Con. Res. 113. Congressional Record. Vol. 129, no. 72. Daily ed. (24 May 1983), H3217-H3271.

_____. House. Conference Report on H.R. 2100, National Defense Authorization Act for Fiscal Years 1992 and 1993. 102d Cong., 1st sess. Congressional Record. Vol. 137, no. 167. Daily ed. (13 November 1991), H9868-H10200.

_____. House. The Defense Budget--Message from the President of the United States. 87th Cong., 1st sess. Congressional Record (28 March 1961), vol. 107, pt. 4.

_____. House. Department of Defense Appropriations Act, 1992. 102d Cong., 1st sess., H.R. 2100. Congressional Record. Vol. 137, no. 87. Daily ed. (7 June 1991), H4144-H4175.

_____. House. Department of Defense Authorization Act, 1984. 98th Cong., 1st sess., H.R. 2969. Congressional Record. Vol. 129, no. 104. Daily ed. (21 July 1983), H5394-H5421.

_____. House. Department of Defense Authorization Act, 1986. 99th Cong., 1st sess., H.R. 1872. Congressional Record. Vol. 131, no. 81. Daily ed. (18 June 1985), H4377-H4403.

_____. House. Department of Defense Authorizations, 1985. 98th Cong., 2d sess., H.R. 5167. Congressional Record. Vol. 130, no. 64. Daily ed. (16 May 1984), H3973-H4046.

_____. House. Making Further Continuing Appropriations for the Fiscal Year Ending September 30, 1988. 100th Cong., 1st sess., H.J. Res. 100-498, 22 December 1987.

- _____. House. National Defense Authorization Act, Fiscal Year 1989. 100th Cong., 2d sess., H.R. 4264. Congressional Record. Vol. 134, no. 62. Daily ed. (5 May 1988), H2985-H3020.
- _____. House. National Defense Authorization Act, Fiscal Year 1990. 101st Cong., 1st sess., H.R. 4739. Congressional Record. Vol. 135, no. 102. Daily ed. (26 July 1989), H4278-H4350.
- _____. House. National Defense Authorization Act, Fiscal Year 1990. 101st Cong., 1st sess., H.R. 4739. Congressional Record. Vol. 135, no. 103. Daily ed. (27 July 1989), H4360-H4447.
- _____. House. National Defense Authorization Act for Fiscal Year 1988. 100th Cong., 1st sess., H.R. 1748. Congressional Record. Vol. 133, no. 77. Daily ed. (13 May 1987), H3518-H3544.
- _____. House. National Defense Authorization Act for Fiscal Years 1992 and 1993. 102d Cong., 1st sess., H.R. 2100. Congressional Record. Vol. 137, no. 78. Daily ed. (22 May 1991), H3380-H3421.
- _____. House. Public Bills and Resolutions. 101st Cong., 2d sess. Congressional Record. Vol. 136, no. 13. Daily ed. (21 February 1990), H408-H409.
- _____. House. Committee on Appropriations. Subcommittee on the Department of Defense. Department of Defense Appropriations Bill, 1988. 100th Cong., 1st sess., H. Rept. 100-410, 28 October 1987.
- _____. House. Committee on Appropriations. Subcommittee on the Department of Defense. Department of Defense Appropriations Bill, 1989. 100th Cong., 2d sess., H. Rept. 100-681, 10 June 1988.
- _____. House. Committee on Appropriations. Subcommittee on the Department of Defense. Department of Defense Appropriations for 1988. Pt. 2. 100th Cong., 1st sess., 26 February 1987.

_____. House. Committee on Appropriations.
Subcommittee on the Department of Defense.
Department of Defense Appropriations for 1988. Pt.
6. 100th Cong., 1st sess., 27 April 1987.

_____. House. Committee on Appropriations.
Subcommittee on the Department of Defense.
Department of Defense Appropriations for 1992. Pt.
1. 102d Cong., 1st sess., 27 February 1991.

_____. House. Committee on Armed Services. Department
of Defense Authorization for Appropriations for
Fiscal Year 1984. Strategic Programs. 98th Cong.,
1st sess., 20-22 April and 19 May 1983.

_____. House. Committee on Armed Services. National
Defense Authorization Act for Fiscal Year 1989.
100th Cong., 2d sess., H. Rept. 100-563, 5 April
1988.

_____. House. Committee on Armed Services. National
Defense Authorization Act for Fiscal Year 1989--H.R.
4264. Authorization and Oversight. 100th Cong., 2d
sess., 24 February 1988.

_____. House. Committee on Armed Services. National
Defense Authorization Act for Fiscal Year 1990--H.R.
2461. Authorization and Oversight. 101st Cong., 1st
sess., 25 April 1989.

_____. House. Committee on Armed Services. National
Defense Authorization Act for Fiscal Year 1991.
101st Cong., 2d sess., H. Rept. 101-665, 3 August
1990.

_____. House. Committee on Armed Services. National
Defense Authorization Act for Fiscal Year 1991--H.R.
4739. Authorization and Oversight. 101st Cong., 2d
sess., 6 February, 1 and 6 March, 26 April, and 26
July 1990.

_____. House. Committee on Armed Services. National
Defense Authorization Act for Fiscal Years
1988/1989. 100th Cong., 1st sess., H. Rept. 100-58,
15 August 1987.

- _____. House. Committee on Armed Services. National Defense Authorization Act for Fiscal Years 1988/1989--H.R. 1748. Authorization and Oversight. 100th Cong., 1st sess., 24 March 1987.
- _____. House. Committee on Armed Services. National Defense Authorization Act for Fiscal Years 1988/1989--H.R. 1748. Title I. 100th Cong., 1st sess., 12 March 1987.
- _____. House. Committee on Armed Services. National Defense Authorization Act for Fiscal Years 1988/1989--H.R. 1748. Title II. 100th Cong., 1st sess., 10 March 1987.
- _____. House. Committee on Armed Services. National Defense Authorization Act for Fiscal Years 1990-1991. 101st Cong., 1st sess, H. Rept. 101-121, 1 July 1989.
- _____. House. Committee on Armed Services. National Defense Authorization Act for Fiscal Years 1992 and 1993. 102d Cong., 1st sess., H. Rept. 102-60, 13 May 1991.
- _____. House. Committee on Armed Services. Soviet Views on National Security Issues in the 1990s. 101st Cong., 1st sess, 21 July 1989.
- _____. House. Committee on Armed Services. Defense Policy Panel. Building a Defense That Works for the Post-Cold War World. 101st Cong., 2d sess., 22 March 1990.
- _____. House. Committee on Armed Services. Defense Policy Panel. The Fading Threat: Soviet Conventional Military Power in Decline. 101st Cong., 2d sess., 9 July 1990.
- _____. House. Committee on Armed Services. Defense Policy Panel. General Secretary Mikhail Gorbachev and the Soviet Military: Assessing His Impact and the Potential for Future Changes. 100th Cong., 2d sess, 13 September 1988.
- _____. House. Committee on Armed Services. Defense Policy Panel. Gorbachev's Force Reductions and the Restructuring of Soviet Forces. 101st Cong., 1st sess., 10 and 14 March 1989.

- _____. House. Committee on Armed Services. Defense Policy Panel. The Impact of Gorbachev's Reform Movement on the Soviet Military. 100th Cong., 2d sess., 14 July 1988.
- _____. House. Committee on Armed Services. Defense Policy Panel. National Security Policy. 100th Cong., 1st sess., 13 March 1987.
- _____. House. Committee on Armed Services. Defense Policy Panel. Soviet Readiness for War: Assessing One of the Major Sources of East-West Instability. 100th Cong., 2d sess., December 1988.
- _____. House. Committee on Armed Services. Procurement and Military Nuclear Systems Subcommittee. National Defense Authorization Act for Fiscal Year 1990--H.R. 2461. Procurement of Aircraft, Missiles, Weapons and Tracked Combat Vehicles, Ammunition, and Other Procurement. 101st Cong., 1st sess, 16 March 1989.
- _____. House. Committee on Armed Services. Subcommittee on Research and Development and Subcommittee on Procurement and Military Nuclear Systems. MX Rail Garrison and the Small ICBM: A Program Review. 100th Cong., 1st sess., 21 March 1988.
- _____. House. Conference Report. Authorizing Appropriations for Fiscal Year 1990 for Military Activities of the Department of Defense, for Military Construction, and for Defense Activities of the Department of Energy, to Prescribe Personnel Strengths for Such Fiscal Year for the Armed Forces and for Other Purposes. 101st Cong., 1st sess., H. Rept. 101-331, 7 November 1989.
- _____. House. Conference Report. Making Appropriations for the Department of Defense. 100th Cong., 2d sess., H. Rept. 100-1002, 28 September 1988.
- _____. House. Conference Report. Making Appropriations for the Department of Defense. 101st Cong., 2d sess., H. Rept. 101-938, 24 October 1990.
- _____. House. Conference Report. Making Appropriations for the Department of Defense. 102d Cong., 1st sess., H. Rept. 102-328, 18 November 1991.

- _____. House. Conference Report. National Defense Authorization Act, Fiscal Year 1989 for the Fiscal Year Ending September 30, 1992, and Other Purposes. 100th Cong., 2d sess., H. Rept. 100-753, 7 July 1988.
- _____. House. Conference Report. National Defense Authorization Act for Fiscal Year 1989. 100th Cong., 2d sess., H. Rept. 100-989, 28 September 1988.
- _____. House. Conference Report. National Defense Authorization Act for Fiscal Year 1991. 101st Cong., 2d sess., H. Rept. 101-923, 23 October 1990.
- _____. House. Conference Report. National Defense Authorization Act for Fiscal Years 1988 and 1989. 100th Cong., 1st sess., H. Rept. 100-446, 17 November 1987.
- _____. Senate. Department of Defense Appropriations Act, Fiscal Year 1992. 102d Cong., 1st sess., H.R. 2521. Congressional Record. Vol. 137, no. 134. Daily ed. (25 September 1991), S13631-S13694.
- _____. Senate. Department of Defense Appropriations Act, Fiscal Year 1992. 102d Cong., 1st sess., H.R. 2521. Congressional Record. Vol. 137, no. 135. Daily ed. (26 September 1991), S13743-S13827.
- _____. Senate. Further Continuing Appropriations, Fiscal Year 1988. 100th Cong., 1st sess., H.J. Res. 395. Congressional Record. Vol. 133, no. 197. Daily ed. (11 December 1987), S17818-S17850.
- _____. Senate. Implementing a New Military Strategy: The Budget Decisions. 101st Cong., 2d sess. Congressional Record. Vol. 136, no. 44. Daily ed. (20 April 1990), S4652-S4658.
- _____. Senate. MX Missile Basing Funds. 98th Cong., 1st sess., S. Con. Res. 26. Congressional Record. Vol. 129, no. 71. Daily ed. (24 May 1983), S7313-S7345.
- _____. Senate. MX Missile Basing Funds. 98th Cong., 1st sess., S. Con. Res. 26. Congressional Record. Vol. 129, no. 72. Daily ed. (25 May 1983), S7409-S7488.

- _____. Senate. National Defense Authorization Act. 100th Cong., 2d sess., S. 2355. Congressional Record. Vol. 134, no. 66. Daily ed. (12 May 1988), S5501-S5549.
- _____. Senate. National Defense Authorization Act for Fiscal Year 1986. 99th Cong., 1st sess., S. 1160. Congressional Record. Vol. 131, no. 69. Daily ed. (23 May 1985), S6912-S6993.
- _____. Senate. National Defense Authorization Act for Fiscal Year 1986. 99th Cong., 1st sess., S. 1160. Congressional Record. Vol. 131, no. 70. Daily ed. (24 May 1985), S7005-S7022.
- _____. Senate. National Defense Authorization Act for Fiscal Years 1990 and 1991. 101st Cong., 1st sess., S2884. Congressional Record. Vol. 135, no. 106. Daily ed. (1 August 1989), S9185-S9214.
- _____. Senate. National Defense Authorization Act for Fiscal Years 1992 and 1993. 102d Cong., 1st sess., S. 1507. Congressional Record. Vol. 137, no. 121. Daily ed. (2 August 1991), S12036-S12114.
- _____. Senate. Nunn (and Others) Amendment No. 769. 100th Cong., 1st sess. Congressional Record. Vol. 133, no. 148. Daily ed. (26 September 1987), S12917.
- _____. Senate. Rail Garrison MX Missile Program. 100th Cong., 2d sess. Congressional Record. Vol. 134, no. 75. Daily ed. (25 May 1988), S6686-S6687.
- _____. Senate. Reduced Funding for the MX Rail Garrison Missile System. 101st Cong., 2nd sess. Congressional Record. Vol. 136, no. 44. Daily ed. (20 April 1990), S4658-S4670.
- _____. Senate. Release of Production Funds for MX Missiles. 99th Cong., 1st sess. Congressional Record. Vol. 131, no. 30. Daily ed. (18 March 1985), S3026-S3040.
- _____. Senate. Release of Production Funds for MX Missiles. 99th Cong., 1st sess. Congressional Record. Vol. 131, no. 31. Daily ed. (19 March 1985), S3097-S3165.

- _____. Senate. Reorienting Defense in the 1990's. 101st Cong., 2d sess. Congressional Record. Vol. 136, no. 41. Daily ed. (5 April 1990), S4056-S4061.
- _____. Senate. Committee on Appropriations. Subcommittee on Defense. Department of Defense Appropriations Bill, 1988. 100th Cong., 1st sess., S. Rept. 100-235, 4 December 1987.
- _____. Senate. Committee on Appropriations. Subcommittee on Defense. Department of Defense Appropriations Bill, 1989. 100th Cong., 2d sess., S. Rept. 100-402, 24 June 1988.
- _____. Senate. Committee on Appropriations. Subcommittee on Defense. Department of Defense Appropriations, Fiscal Year 1988. Pt. 1. 100th Cong., 1st sess., 18 February 1987.
- _____. Senate. Committee on Appropriations. Subcommittee on Defense. Department of Defense Appropriations, Fiscal Year 1988. Pt. 3. 100th Cong., 1st sess., 21 April 1987.
- _____. Senate. Committee on Appropriations. Subcommittee on Defense. Department of Defense Appropriations, Fiscal Year 1989. Pt. 2. 100th Cong., 2d sess., 30 March 1988.
- _____. Senate. Committee on Appropriations. Subcommittee on Defense. Department of Defense Appropriations, Fiscal Year 1991. Pt. 2. 101st Cong., 2d sess., 3 May 1990.
- _____. Senate. Committee on Armed Services. Department of Defense Authorization for Appropriations for Fiscal Year 1989. Pt. 1. 100th Cong., 2d sess., 18 February 1988.
- _____. Senate. Committee on Armed Services. Department of Defense Authorization for Appropriations for Fiscal Year 1991. Pt. 1. 101st Cong., 2d sess., 17 May 1990.
- _____. Senate. Committee on Armed Services. Department of Defense Authorization for Appropriations for Fiscal Year 1991. Pt. 7. 101st Cong., 2d sess., 3 May 1990.

- _____. Senate. Committee on Armed Services. Department of Defense Authorization for Appropriations for Fiscal Years 1988 and 1989. Pt. 1. 100th Cong., 1st sess., 4 February 1987.
- _____. Senate. Committee on Armed Services. Department of Defense Authorization for Appropriations for Fiscal Years 1990 and 1991. Pt. 2. 101st Cong., 1st sess., 21 June 1989.
- _____. Senate. Committee on Armed Services. Department of Defense Authorization for Appropriations for Fiscal Years 1992 and 1993. Pt. 1. 102d Cong., 1st sess., 21 February and 19 March 1991.
- _____. Senate. Committee on Armed Services. MX Missile Basing System and Related Issues. 98th Cong., 1st sess., 18, 20-22, and 26 April 1983.
- _____. Senate. Committee on Armed Services. National Defense Authorization Act for Fiscal Year 1989. 100th Cong., 2d sess., S. Rept. 100-326, 4 May 1988.
- _____. Senate. Committee on Armed Services. National Defense Authorization Act for Fiscal Year 1991. 101st Cong., 2d sess., S. Rept. 101-384, 20 July 1990.
- _____. Senate. Committee on Armed Services. National Defense Authorization Act for Fiscal Years 1988 and 1989. 100th Cong., 1st sess., S. Rept. 100-57, 8 May 1987.
- _____. Senate. Committee on Armed Services. National Defense Authorization Act for Fiscal Years 1990 and 1991. 101st Cong., 1st sess., S. Rept. 101-81, 19 July 1989.
- _____. Senate. Committee on Armed Services. National Defense Authorization Act for Fiscal Years 1992 and 1993. 102d Cong., 1st sess., S. Rept. 102-113, 19 July 1991.
- _____. Senate. Committee on Armed Services. National Security Strategy. 100th Cong., 1st sess., 21 January 1987.

_____. Senate. Committee on Armed Services. Nomination of John G. Tower to be Secretary of Defense. 101st Cong., 1st sess., 25, 26, and 31 January and 1 and 23 February 1989.

_____. Senate. Committee on Armed Services. Nominations Before the Senate Armed Services Committee, First Session, 101st Congress. 101st Cong., 1st sess., 14 and 16 March 1989.

_____. Senate. Committee on Armed Services. Nominations Before the Senate Armed Services Committee, Second Session, 101st Congress. 101st Cong., 2d sess., 14 June 1990.

_____. Senate. Committee on Armed Services. Threat Assessment; Military Strategy; and Operational Requirements. 101st Cong., 2d sess., 23, 24, and 30 January and 2 and 6 February 1990.

_____. Senate. Committee on Foreign Relations. The INF Treaty. 100th Cong., 2d sess., 1 February 1988.

U.S. Department of Defense. Annual Report to the Congress, Fiscal Year 1988. Washington, D.C.: GPO, 12 January 1987.

_____. Annual Report to the Congress, Fiscal Year 1989. Washington, D.C.: GPO, 18 February 1988.

_____. Annual Report to the Congress, Fiscal Year 1990. Washington, D.C.: GPO, 17 January 1989.

_____. Annual Report to the President and the Congress. Washington, D.C.: GPO, January 1990.

_____. "Defense Acquisition." DOD Directive 5000.1, 23 February 1991.

_____. ICBM Modernization Program Annual Report to the Committees on Armed Services of the Senate and the House of Representatives. Washington, D.C.: U.S. Department of Defense, 13 January 1984.

_____. ICBM Modernization Program Annual Report to the Committees on Armed Services of the Senate and the House of Representatives. Washington, D.C.: U.S. Department of Defense, 15 January 1985.

- _____. ICBM Modernization Program Annual Report to the Committees on Armed Services of the Senate and the House of Representatives. Washington, D.C.: U.S. Department of Defense, 15 January 1986.
- _____. Report of the Secretary of Defense to the President and the Congress. Washington, D.C.: GPO, January 1991.
- _____. Soviet Military Power. Washington, D.C.: GPO, April 1985.
- _____. Office of the Assistant Secretary of Defense for Public Affairs. "Amended FY 1990/FY1991 Department of Defense Budget." News release, 25 April 1989.
- _____. Office of the Assistant Secretary of Defense for Public Affairs. "Defense Department Briefing on Fiscal Year 1992 Budget." News release, 4 February 1991.
- _____. Office of the Deputy Under Secretary of Defense for Research and Engineering (Strategic and Space Systems). ICBM Basing Options: A Summary of Major Studies to Define a Survivable Basing Concept for ICBMs. Washington, D.C.: U.S. Department of Defense, December 1980.
- U.S. General Accounting Office. ICBM Modernization: Rail Garrison Production Decision and Launch Car Acquisition Should Be Delayed. Washington, D.C.: U.S. General Accounting Office, December 1989.
- _____. ICBM Modernization: Status of the Peacekeeper Rail Garrison System. Washington, D.C.: U.S. General Accounting Office, January 1989.
- _____. ICBM Modernization: Status, Survivable Basing Issues, and Need to Establish a National Consensus. Washington, D.C.: U.S. General Accounting Office, September 1986.
- U.S. Office of Technology Assessment. MX Missile Basing. Washington, D.C.: GPO, 1981.

U.S. President. Public Papers of the Presidents of the United States. Washington, D.C.: Office of the Federal Register, National Archives and Records Service, 1981. Ronald Reagan, 1981.

. Public Papers of the Presidents of the United States. Washington, D.C.: Office of the Federal Register, National Archives and Records Service, 1983. Ronald Reagan, 1983.